

Workshop 1: The NARSTO North American PM Assessment

Chair: James Vickery, EPA

Co-Chairs: Marjorie Shepherd, Environment Canada and William Wilson, EPA

Tuesday, April 1, 2003

8:00 AM - 9:30 AM

Oral Session

Location: LeBateau

OR01-01. THIS ORAL SESSION WILL BE COMPOSED OF A PANEL OF 5 NORTH AMERICAN POLICY MAKERS DISCUSSING THEIR "TAKE-HOME" MESSAGES FROM THE NARSTO PM ASSESSMENT: JEFFREY HOLMSTEAD, EPA; BARRY STEMSHORN, EC; ADRIAN FERNANDEZ, INE; LYNN TERRY, CARB; SUSAN WIERMAN, MARAMA; AND PETER MCMURRY, UNIVERSITY OF MINNESOTA.

Poster Session

Location: Grand Ballroom 2-4

P01-01. THE NARSTO NORTH AMERICAN PM ASSESSMENT: CHAPTER 6 - SPATIAL AND TEMPORAL CHARACTERIZATION OF PARTICULATE MATTER.

Charles L Blanchard. Envair, Albany, CA.

P01-02. NORTH AMERICAN EMISSIONS INVENTORIES APPLICABLE TO MANAGEMENT OF AIRBORNE PARTICULATE MATTER (PM).

George M. Hidy, Thomas Pace, David Niemi. Proprietarship, Envair/Aerochem, Placitas, NM; Office of Air Quality Planning and Standards, U. S. Environmental Protection Agency, Research Triangle Park, NC; Environmental Protection Service, Environment Canada, Ottawa, ON, Canada.

P01-03. RECEPTOR METHODS: A REVIEW FOR NARSTO'S PARTICULATE MATTER ASSESSMENT.

Jeffrey R Brook, John G Watson, Elizabeth Vega. Air Quality Research Branch, Meteorological Service of Canada, Toronto, ON, Canada; Desert Research Institute, Reno, NV; Instituto Mexicano Del Petroleo, Mexico City, Mexico DF, Mexico.

P01-04. VISIBILITY EFFECTS DUE TO PM-2.5: IMPLICATIONS FROM THE NARSTO PM ASSESSMENT.

Ivar H Tombach, Karen McDonald. Consultant, Camarillo, CA; Environmental Health, Concordia University College of Alberta, Edmonton, AB, Canada.

P01-05. NARSTO PM ASSESSMENT: RECOMMENDED RESEARCH TO INFORM PUBLIC POLICY.

Peter H. McMurry. Mechanical Engineering, University of Minnesota, Minneapolis, MN.

P01-06. CONCEPTUAL MODEL FOR PARTICULATE AIR POLLUTION IN LOS ANGELES.

Michael J. Kleeman. Civil and Environmental Engineering, University of California, Davis, Davis, CA.

P01-07. CONCEPTUAL DESCRIPTION OF PM OVER MEXICO CITY.

J. Jason West, Sylvia Edgerton, Hilda Martinez Salgado, Elizabeth Vega. AAAS Environmental Fellow, US EPA, Office of Air & Radiation, Washington, DC; Pacific Northwest National Laboratory, Richland, WA; Urban, Regional, and Global Pollution, National Institute of Ecology (INE), Mexico City, DF, Mexico; Mexican Petroleum Institute (IMP), Mexico, DF, Mexico.

P01-08. CONCEPTUAL MODEL OF PM IN THE WINDSOR-QUEBEC CITY CORRIDOR.

Jeffrey R. Brook, Michael D. Moran. Meteorological Service of Canada, Environment Canada, Toronto, ON, Canada.

P01-09. LINKAGES ACROSS PM POLICY AND RESEARCH: EXAMINING THE POLICY RELEVANT FINDINGS FROM THE PM_{2.5} SUPERSITES PROGRAM.

Richard D. Scheffe, Paul Solomon, John D. Bachmann. *Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, RTP, NC; Office of Research and Development, U.S. Environmental Protection Agency, Las Vegas, NV; Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, RTP, NC.*

P01-10. OVERVIEW OF THE SAINT LOUIS - MIDWEST SUPERSITE.

Jay R Turner, George Allen, Tina Bahadori, Judith C Chow, D Alan Hansen, Petros Koutrakis, Peter H McMurry, John M Ondov, James J Schauer, John G Watson Rodney J Weber, Warren H White. *Environmental Engineering Program, Washington University, Saint Louis, MO; Northeast States for Coordinated Air Use Management, Boston, MA; Long-Range Research Initiative, American Chemistry Council, Arlington, VA; Division of Atmospheric Sciences, Desert Research Institute, Reno, NV; EPRI, Palo Alto, CA; School of Public Health, Harvard University, Boston, MA; Mechanical Engineering Department, University of Minnesota, Minneapolis, MN; Chemistry Department, University of Maryland, College Park, MD; Civil and Environmental Engineering Department, University of Wisconsin, Madison, WI; School of Earth & Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA; Crocker Nuclear Laboratory, University of California at Davis, Davis, CA.*

P01-11. A SPATIO-TEMPORAL AEROSOL CLIMATOLOGIC CONTEXT FOR THE SAINT LOUIS-MIDWEST SUPERSITE.

Scott A Duthie, Stefan R Falke, Rudolf B Husar, Warren H White, Jay R Turner. *Environmental Engineering Program, Washington University, Saint Louis, MO; Center for Air Pollution Impact and Trend Analysis, Washington University, Saint Louis, MO; Crocker Nuclear Laboratory, University of California at Davis, Davis, CA.*

P01-12. DIURNAL CYCLES AND SPORADIC EVENTS IN THE SAINT LOUIS AEROSOL.

Warren H White, Min-Suk Bae, Petros Koutrakis, Peter H McMurry, James J Schauer, Jay R Turner. *Crocker Nuclear Laboratory, University of California at Davis, Davis, CA; Civil and Environmental Engineering, University of Wisconsin, Madison, WI; School of Public Health, Harvard University, Boston, MA; Mechanical Engineering Department, University of Minnesota, Minneapolis, MN; Environmental Engineering Program, Washington University, Saint Louis, MO.*

P01-13. SOUTHEASTERN AEROSOL RESEARCH AND CHARACTERIZATION (SEARCH) STUDY: KEY FINDINGS FOR POLICY MAKERS.

John J Jansen, Eric S Edgerton, Krishnan Kandasamy. *Research & Environmental Affairs, Southern Company, Birmingham, AL; Atmospheric Research & Analysis, Inc., Cary, NC.*

P01-14. THE STATISTICAL ANALYSIS OF PM 2.5 IN ATLANTA: AN APPLICATION TO THE CONTROL STRATEGY.

Sun-Kyoung Park, Armistead G Russell. *Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA.*

P01-15. SOUTH BRONX ENVIRONMENTAL STUDIES PROJECT: COMPARISON OF GROUND-LEVEL AIR QUALITY DATA WITH NEW YORK STATE DEPARTMENT OF CONSERVATION MONITORING STATIONS DATA.

Carlos E Restrepo. *Wagner Graduate School of Public Service, New York University, New York, NY.*

P01-16. DEVELOPMENT OF A DATABASE AND ANALYTICAL TOOLS FOR THE MANAGEMENT OF DATA DERIVED FROM U S-DOE (NETL)-FUNDED FINE PARTICULATE (PM_{2.5}) RESEARCH.

Robinson P. Khosah, Charles G. Crawford, Kevin Crist, Sudhin Devarachetty, Kuruvilla John. *Science & Technology, Advanced Technology Systems, Inc., Pittsburgh, PA; School of Health Sciences, Ohio University, Athens, OH; Department of Environmental Engineering, Texas A&M University -Kingsville, Kingsville, TX.*

P01-17. ADVANCED FACTOR ANALYSIS OF SPATIAL DISTRIBUTIONS OF PM2.5 IN THE EASTERN UNITED STATES.

Philip K Hopke, Pentti Paatero, Shelly Eberly, William Cox. *Chemical Engineering, Clarkson University, Potsdam, NY; Physical Sciences, University of Helsinki, Helsinki, Finland; U.S. Environmental Protection Agency, Research Triangle Park, NC.*

P01-18. AEROSOL CHEMICAL COMPOSITION UPDATE: CAN WE ACHIEVE THE ANNUAL PM2.5 NAAQS BY CONTROLLING ORGANIC CARBON?

Roger L Tanner, William J Parkhurst. *Air, Land and Water Sciences, Tennessee Valley Authority, Muscle Shoals, AL.*

P01-19. AMMONIA ABATEMENT AND SECONDARY PM REDUCTIONS.

Jan Willem Erisman. *Clean Fossil Fuels, Energy Research Centre of the Netherlands, ECN, Petten, Netherlands.*

P01-20. URBAN AIR QUALITY MODELING IN THE NETHERLANDS AND THE IMPACT OF (EUROPEAN) ABATEMENT PROTOCOLS.

Leendert Van Bree, Salah Mogith, Karel Van Velze, Jeannette Beck. *Office for Environmental Assessment, RIVM, Bilthoven, Netherlands.*

P01-21. REDUCED FORM MODEL TO ESTIMATE AIR POLLUTION IMPACTS.

Luis Cifuentes, Hector Jorquera, Fabian Gaioli, Nelson Gouveia, Devra Davis. *School of Engineering, P. Universidad Catolica de Chile, Santiago, Chile; Secretaria de Ambiente y Desarrollo Sustentable, Ministerio de Desarrollo Social, Buenos Aires, Argentina; Faculdade de Medicina, Universidade de Sao Paulo., Sao Paulo, Brazil; The H. John Heinz III School of Public Policy and Management, Carnegie Mellon University, Pittsburgh, PA.*

Workshop 2: Epidemiology: Short-Term and Long-Term Health Effects

*Chair: George Thurston, NYU
Co-Chair: Doug Dockery, HSPH
Tuesday, April 1, 2003
8:00 AM - 9:30 AM*

Oral Session

Location: Kings Garden South

OR02-01. METANALYSIS OF THE IMPACT OF PM10 ON PREMATURE MORTALITY.

Humberto Carreno, Luis Cifuentes. *Industrial Engineering Department, P. Universidad Catolica de Chile, Santiago, Chile.*

OR02-02. BEYOND THE HARVESTING EFFECT: MEASURING THE EFFECT OF LONG TERM TSP EXPOSURE ON LIFE EXPECTANCY.

Christian J Murray. *Economics, University of Houston, Houston, TX.*

OR02-03. A CASE CROSSOVER ANALYSIS OF PARTICULATE AIR POLLUTION AND CARDIAC ARRHYTHMIA IN PATIENTS WITH IMPLANTABLE CARDIOVERTER DEFIBRILLATORS.

Kira Rich, Michael Brauer, Sverre Vedal, A. John Petkau. *School of Occupational and Environmental Hygiene, The University of British Columbia, Vancouver, BC, Canada; Department of Medicine, National Jewish Medical and Research Center, Denver, CO; Department of Statistics, The University of British Columbia, Vancouver, BC, Canada.*

OR02-04. ASSOCIATIONS BETWEEN PARTICULATE MATTER COMPONENTS AND DAILY MORTALITY AND MORBIDITY IN PHILADELPHIA, PA.

Kazuhiko Ito, Gary Norris, Matt Landis, William Wilson, George Thurston. *NYU School of Medicine, Nelson Institute of Environmental Medicine, Tuxedo, NY; U.S. EPA, RTP, NC.*

OR02-05. FURTHER ANALYSIS OF THE ASSOCIATIONS BETWEEN AIR POLLUTION SOURCE FACTORS AND MORTALITY IN A SMALL AREA NEAR THE MONITORING SITE IN PHOENIX, 1995-1997.

Therese F Mar, Jane Q Koenig, Timothy V Larson, William E Wilson. *Department of Environmental Health, University of Washington, Seattle, WA; Department of Civil and Environmental Engineering, University of Washington, Seattle, WA; National Center for Environmental Assessment, U.S. Environmental Protection Agency, Research Triangle Park, NC.*

OR02-06. ASSOCIATION OF SINGLE AND MULTIPLE COMPONENTS OF PM AND HUMAN MORTALITY IN ATLANTA, GA.

Rebecca J Klemm. *Klemm Analysis Group, Inc., Washington, DC.*

OR02-07. A COMPARISON OF HEALTH EFFECTS FROM EXPOSURE TO AMBIENT AND NON-AMBIENT PARTICLES.

Stefanie T Ebelt, Michael Brauer, William E Wilson. *Department of Environmental Health, Harvard School of Public Health, Boston, MA; School of Occupational and Environmental Hygiene, The University of British Columbia, Vancouver, BC, Canada; National Center for Environmental Assessment, U.S. Environmental Protection Agency, Research Triangle Park, NC.*

OR02-08. THE SUSCEPTIBILITY OF OLDER ADULTS TO AIR POLLUTION.

George D. Thurston, Samantha DeLeon, Kaz Ito, Rick Burnett, Yuanli Shi, Pope Arden. *New York University School of Medicine, Nelson Institute of Environmental Medicine, Tuxedo, NY; University of Ottawa, Ottawa, ON, Canada; Brigham Young University, Provo, UT.*

Poster Session

Location: Grand Ballroom 2-4

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Humberto Carreno, Luis Cifuentes. *Industrial Engineering Department, P. Universidad Catolica de Chile, Santiago, Chile.*

P02-02. KEY ATTRIBUTES OF AMBIENT AIR QUALITY DATASETS FOR ASSESSING SHORT-TERM HEALTH EFFECTS: AN EPIDEMIOLOGIC PERSPECTIVE.

Kristi B Metzger, Paige E Tolbert, Mitch Klein, Jennifer L Peel, W Dana Flanders. *Environmental and Occupational Health, Rollins School of Public Health, Emory University, Atlanta, GA; Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA.*

P02-03. BEYOND THE HARVESTING EFFECT: MEASURING THE EFFECT OF LONG TERM TSP EXPOSURE ON LIFE EXPECTANCY.

Christian J Murray. *Economics, University of Houston, Houston, TX.*

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P02-09. THE METAL CONTENT OF AIRBORNE PARTICLES: APPLICATION TO EPIDEMIOLOGICAL RESEARCH.

Iain J Beverland, Mathew R Heal, Raymond M Agius, Leon R Hibbs, Robert Elton. *Civil Engineering, University of Strathclyde, United Kingdom; Chemistry, University of Edinburgh; Centre for Occupational & Environmental Medicine, University of Manchester; Public Health Sciences, University of Edinburgh.*

P02-10. THE EPRI-WASHINGTON UNIVERSITY VETERANS COHORT STUDY: MODEL SENSITIVITY STUDIES AND RESULTS FOR ADDITIONAL AIR POLLUTANTS.

F. W. Lipfert, R. E. Wyzga, J. D. Baty, J. P. Miller. *Environmental, EPRI, Palo Alto, CA; School of Medicine Biostatistics, Washington U., St. Louis, MO; School of Medicine Biostatistics, Washington U., St. Louis, MO.*

P02-11. THE SUSCEPTIBILITY OF OLDER ADULTS TO AIR POLLUTION.

George D. Thurston, Samantha DeLeon, Kaz Ito, Rick Burnett, Yuanli Shi, Pope Arden. *New York University School of Medicine, Nelson Institute of Environmental Medicine, Tuxedo, NY; University of Ottawa, Ottawa, ON, Canada; Brigham Young University, Provo, UT.*

P02-12. A PILOT STUDY OF TRAFFIC EXPOSURES AND THEIR HEALTH EFFECTS AMONG SOUTH BRONX CHILDREN WITH ASTHMA.

George D. Thurston, Michaela Kendall, Polina Maciejczyk, Ramona Lall, John Goczynski, Martin Blaustein, Jessica Clemente, Jodok Guntern, Lung Chi Chen. *Nelson Institute of Environmental Medicine, New York University School of Medicine, Tuxedo, NY.*

P02-13. AMONG CHILDREN WITH ASTHMA, LUNG FUNCTION IS DECREASED WITH THE COMBINATION OF COCKROACH ALLERGY AND EXPOSURE TO AMBIENT OZONE, BUT NOT WITH EXPOSURE TO PARTICULATE MATTER.

Toby C Lewis, Thomas G Robins, Gerald J Keeler, J Timothy Dvonch, Fuyuen Y Yip, Wilma Brakefield-Caldwell, Maria A Salinas, Edith A Parker, Barbara A Israel. *School of Public Health, University of Michigan, Ann Arbor, MI; School of Medicine, University of Michigan, Ann Arbor, MI; Community Partner Organizations, Community Action Against Asthma Steering Committee, Detroit, MI.*

P02-14. AIR QUALITY AND RESPIRATORY HEALTH IN OHIO.

Kevin C Crist, Bruce Carlson, Kuruvilla John. *Health Science, Ohio University, Athens, OH; Psychology, Ohio University, Athens, OH; Environmental Engineering, Texas A&M University - Kingsville, Kingsville, TX.*

P02-15. ASSOCIATIONS BETWEEN PARTICULATE AIR POLLUTION AND ACUTE CARDIO-RESPIRATORY VISITS IN AN AMBULATORY CARE SETTING.

Amber H Sinclair, Dennis D Tolsma. *Research Department, Kaiser Permanente Georgia, Atlanta, GA.*

P02-16. THE LEVEL OF PM10/PM2.5 IN INDOOR AIR AND RESPIRATORY HEALTH OF THE PEOPLES IN BEIJING, CHINA: A COMMUNITY-BASED PILOT STUDY.

Xiao Chuan Pan, Ling Gu Wang, Li Hua Wang. *Dept. of Occupational and Environmental Health, Peking University School of Public Health, Beijing, China; , Beijing, China; Dept. of Occupational and Environmental Health, Peking University School of Public Health, Beijing, China.*

P02-17. THE EFFECT OF ANTHROPOGENIC POLLUTION OF THE ATMOSPHERE ON HUMAN HEALTH ON THE TERRITORY OF GEORGIA.

Teimuraz P Davitashvili, Ketevan D Mirianashvili. *Faculty of Physics, Tbilisi State University, Tbilisi, Georgia; Faculty of Physics, Tbilisi State University, Tbilisi, Georgia.*

P02-18. SOME PROBLEMS OF ASSESSMENT OF ENVIRONMENTAL HEALTH AND AIR POLLUTION IN ARMENIA.

Luiza Khachik Gharibyan. *General Hygiene and Ecology, Yerevan State Medical University, Yerevan, Yerevan, Armenia.*

Workshop 3: Ambient Air Pollution Concentrators and Dose-Response Data

Chair: Terry Gordon, NYU

Co-Chair: Frances Silverman, U. Toronto

Tuesday, April 1, 2003

8:00 AM - 9:30 AM

Oral Session

Location: Kings Garden North

OR03-01. META ANALYSIS OF DUTCH INHALATION TOXICITY STUDIES WITH CONCENTRATED PARTICULATE MATTER IN COMPROMISED RATS.

Flemming R Cassee, John F Boere, Paul HB Fokkens, Daan LAC Leseman, Jan Bos, Ingeborg N Kooter, Peter Steerenberg, Leendert Van Bree, Jan AMA Dormans. *Center of Environment and Health Research, National Institute for Public Health and the Environment, Bilthoven, Netherlands; Laboratory of Toxicology, National Institute for Public Health and the Environment, Bilthoven, Netherlands; Office for Environmental Assessment, National Institute for Public Health and the Environment, Bilthoven, Netherlands.*

OR03-02. EFFECTS OF CONCENTRATED AMBIENT PARTICLES ON HEMODYNAMIC PARAMETERS IN SPONTANEOUS HYPERTENSIVE RATS.

Cheng Tsun-Jen, Chang Chung-Chau, Hwang Jing-Shiang, Wang Peng-Yau, Chan Chang-Chuan. *Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University, Taipei, Taiwan; Institute of Statistical Science, Academia Sinica, Taipei, Taiwan; Institute of Environmental Engineering, National Central University, Chung Li, Taiwan.*

OR03-03. RELATIVE CONTRIBUTIONS OF PM_{2.5}CHEMICAL CONSTITUENTS TO ACUTE ARTERIAL VASOCONSTRICTION.

Bruce Urch, Jeffrey Brook, David Wasserstein, Robert Brook, Sanjay Rajagopalan, Alina Rivilis, Paul Corey, Frances Silverman. *Gage Occupational & Environmental Health Unit, University of Toronto/St. Michael's Hospital, Toronto, ON, Canada; Public Health Sciences, University of Toronto, Toronto, ON, Canada; Air Quality Research Branch, Environment Canada, Toronto, ON, Canada; Internal Medicine, University of Michigan, Ann Arbor, MI; Department of Medicine, University of Toronto, Toronto, ON, Canada.*

OR03-04. EXPOSURE TO CONCENTRATED FINE AND ULTRAFINE AMBIENT PARTICLES NEAR HEAVILY TRAFFICKED ROADS INDUCES ALLERGIC REACTIONS IN MICE.

Michael T Kleinman, Dianne Meacher, Michael Oldham, Constantinos Sioutas, Chandan Misra. *Community and Environmental Medicine, University of California, Irvine, Irvine, CA; Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

OR03-05. CONCENTRATED AMBIENT PARTICLES ATTENUATE ALLERGEN-INDUCED AIRWAY RESPONSES IN THE LUNGS OF BROWN NORWAY RATS.

Jack Harkema, James Wagner, Constantinos Sioutas, Edward Timm, Norbert Kaminski, Michael Kleinman, John Froines. *Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; Southern California Particle Center and Supersite, Los Angeles, CA.*

OR03-06. EFFECTS OF ACUTE AND SUBCHRONIC EXPOSURE TO CONCENTRATED AMBIENT PARTICULATES IN HEALTHY AND COMPROMISED RODENTS.

W P Watkinson, L B Wichers, J P Nolan, D W Winsett, U P Kodavanti, M J Schladweiler, L C Walsh, E R Lappi, D Terrell, R Slade, A D Ledbetter, D L Costa. *ORD/NHEERL/ETD/PTB, USEPA, RTP, NC; UNC SPH, Chapel Hill, NC.*

OR03-07. EXPERIMENTAL EXPOSURES OF ASTHMATIC AND HEALTHY VOLUNTEERS TO CONCENTRATED AMBIENT COARSE PARTICLES IN LOS ANGELES.

Henry Gong, Jr., William S. Linn, Sheryl L. Terrell, Kenneth W. Clark, Michael D. Geller, Karen R. Anderson, Constantinos Sioutas. *Los Amigos Research, U.S.C. Keck School of Medicine, Downey, CA; Los Amigos Research & Educ. Institute, Downey, CA; School of Engineering, U.S.C., Los Angeles, CA.*

Poster Session

Location: Grand Ballroom 2-4

P03-01. RATIONALE AND DESIGN OF THE CARDIOVASCULAR LINKAGE BETWEEN ENDOTHELIAL DYSFUNCTION AND AIR POLLUTION (CLEAN AIR) STUDY.

Robert D Brook, Jeffrey R Brook, J Tim Dvnoch, Sanjay Rajagopalan, Jack R Harkema, Bruch Urch, Renaud Vincent, Frances Silverman, Gerald J Keeler. *Internal Medicine, University of Michigan, Ann Arbor, MI; University of Toronto, Toronto, ON, Canada; School of Public Health, University of Michigan, Ann Arbor, MI; Michigan State University, East Lansing, MI; Health Canada, Ottawa, ON, Canada.*

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P03-03. SEPARATE AND COMBINED EFFECTS OF AMBIENT FINE PARTICULATE POLLUTION AND NITROGEN DIOXIDE IN ELDERLY VOLUNTEERS.

Henry Gong, Jr., William S. Linn, Sheryl L. Terrell, Kenneth W. Clark, Michael D. Geller, Karen R. Anderson, Constantinos Sioutas. *Los Amigos Research, Keck School of Medicine, U.S.C., Downey, CA; Los Amigos Research & Education Institute, Downey, CA; School of Engineering, U.S.C., Los Angeles, CA.*

P03-04. RELATIVE CONTRIBUTIONS OF PM_{2.5}CHEMICAL CONSTITUENTS TO ACUTE ARTERIAL VASOCONSTRICTION.

Bruce Urch, Jeffrey Brook, David Wasserstein, Robert Brook, Sanjay Rajagopalan, Alina Rivilis, Paul Corey, Frances Silverman. *Gage Occupational & Environmental Health Unit, University of Toronto/St. Michael's Hospital, Toronto, ON, Canada; Public Health Sciences, University of Toronto, Toronto, ON, Canada; Air Quality Research Branch, Environment Canada, Toronto, ON, Canada; Internal Medicine, University of Michigan, Ann Arbor, MI; Department of Medicine, University of Toronto, Toronto, ON, Canada.*

P03-05. EFFECTS OF CONCENTRATED FINE AMBIENT PARTICLES ON RAT PLASMA LEVELS OF ASYMMETRIC DIMETHYLARGININE.

S. Rajagopalan, R. D. Brook, G. J. Keeler, J. T. Dvonch, F. J. Marsik, M. Morishita, J. R. Brook, L. DAlecy, A. Motivala, E. J. Timm J. G. Wagner, J. R. Harkema. *Internal Medicine, The University of Michigan, Ann Arbor, MI; Environmental Health Sciences, The University of Michigan, Ann Arbor, MI; Air Quality Processes Research Division, Environment Canada, Toronto, ON, Canada; Pathobiology and Diagnostic Investigations, Michigan State University, East Lansing, MI.*

P03-06. CARDIOPULMONARY EFFECTS OF ASIAN DUST EVENT IN DISEASE ANIMAL MODELS.

Lei Yu-Chen, Chan Chang-Chung, Chang Chuen-Chau, Wang Peng-Yau, Cheng Tsun-Jen. *Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University, Taipei, Taiwan; Institute of Environmental Engineering, National Central University, Chung Li, Taiwan.*

P03-07. FINE AND COARSE PARTICLES OF THE CALIFORNIA CENTRAL VALLEY DIFFERENTIALLY INDUCE ADVERSE EFFECTS IN THE LUNGS OF RATS.

Kevin R Smith, Seongheon Kim, Chandan Misra, Julian J Recendez, Ann E Aust, Constantinos Sioutas, Kent E Pinkerton. *Center for Health and the Environment, University of California, Davis, CA; Civil and Environmental Engineering, University of Southern California, Los Angeles, CA; Chemistry and Biochemistry, Utah State University, Logan, UT.*

P03-08. META ANALYSIS OF DUTCH INHALATION TOXICITY STUDIES WITH CONCENTRATED PARTICULATE MATTER IN COMPROMISED RATS.

Flemming R Cassee, John F Boere, Paul HB Fokkens, Daan LAC Leseman, Jan Bos, Ingeborg N Kooter, Peter Steerenberg, Leendert Van Bree, Jan AMA Dormans. *Center of Environment and Health Research, National Institute for Public Health and the Environment, Bilthoven, Netherlands; Laboratory of Toxicology, National Institute for Public Health and the Environment, Bilthoven, Netherlands; Office for Environmental Assessment, National Institute for Public Health and the Environment, Bilthoven, Netherlands.*

P03-09. EFFECTS OF CONCENTRATED AMBIENT PARTICLES ON HEMODYNAMIC PARAMETERS IN SPONTANEOUS HYPERTENSIVE RATS.

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P03-10. EXPOSURE TO CONCENTRATED FINE AND ULTRAFINE AMBIENT PARTICLES NEAR HEAVILY TRAFFICKED ROADS INDUCES ALLERGIC REACTIONS IN MICE.

Michael T Kleinman, Dianne Meacher, Michael Oldham, Constantinos Sioutas, Chandan Misra. *Community and Environmental Medicine, University of California, Irvine, Irvine, CA; Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P03-11. CONCENTRATED AMBIENT PARTICLES ATTENUATE ALLERGEN-INDUCED AIRWAY RESPONSES IN THE LUNGS OF BROWN NORWAY RATS.

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P03-12. EFFECTS OF ACUTE AND SUBCHRONIC EXPOSURE TO CONCENTRATED AMBIENT PARTICULATES IN HEALTHY AND COMPROMISED RODENTS.

W P Watkinson, L B Wichers, J P Nolan, D W Winsett, U P Kodavanti, M J Schladweiler, L C Walsh, E R Lappi, D Terrell, R Slade, A D Ledbetter, D L Costa. *ORD/NHEERL/ETD/PTB, USEPA, RTP, NC; UNC SPH, Chapel Hill, NC.*

P03-13. LACK OF EFFECT OF AGE AND ANTIOXIDANT DEPLETION ON RESPIRATORY RESPONSES TO CONCENTRATED AMBIENT PARTICULATES (CAPs) IN RODENTS.

Janice A. Dye, Leon C. Walsh III, Carol L. Hayes, Judy H. Richards, Darrel W. Winsett, Urmila P. Kodavanti, W. Penn Watkinson. *ORD, NHEERL, ETD, Pulmonary Toxicology Branch, US EPA, RTP, NC; SEEP, RTP, NC.*

P03-14. DEVELOPMENT OF A SYSTEM TO ASSESS THE TOXICITY OF SECONDARY COAL COMBUSTION EMISSIONS: THE TERESA STUDY.

Annette C Rohr, Pablo A Ruiz-Rudolph, Joy E Lawrence, J Mikhail Wolfson, Petros Koutrakis. *Environment, Electric Power Research Institute, Palo Alto, CA; Department of Environmental Health, Harvard School of Public Health, Boston, MA.*

P03-15. DEVELOPMENT AND EVALUATION OF A COMPACT FACILITY FOR EXPOSING HUMANS TO CONCENTRATED ULTRAFINE AMBIENT PARTICLES.

Chandan Misra, Philip M Fine, Manisha Singh, Constantinos Sioutas. *Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P03-16. ATOFMS CHARACTERIZATION OF AMBIENT FINE AND ULTRAFINE PARTICLES FROM A VERSATILE AEROSOL CONCENTRATION ENRICHMENT SYSTEM (VACES).

Yongxuan Su, Michele F Sipin, Kimberly A Prather, Robert M Gelein, Gunter Oberdorster. *Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA; Department of Environmental Medicine, University of Rochester, Rochester, NY.*

P03-17. METHODS FOR EXPOSING RODENTS AND CELLS TO CONCENTRATED AMBIENT PM USING VACES.

Lung Chi Chen, Mianhua Zhong, Sandy P Narciso, Michael Kleinman, Christine Nadziejko, Morton Lippmann. *Nelson Institute of Environmental Medicine, NYU School of Medicine, Tuxedo, NY; Community and Environmental Medicine, University of California, Irvine, CA.*

P03-18. COMPOSITION MATTERS: INVESTIGATION OF TOXIC POTENCY VERSUS CHEMICAL COMPOSITION IN MOTOR VEHICLE EMISSIONS.

Jacob D. McDonald, JeanClare Seagrave, Barbara Zielinska, Kevin Whitney, Ingvar Eide, Joe L. Mauderly. *Toxicology, Lovelace Respiratory Research Institute, Albuquerque, NM; Atmospheric Sciences, Desert Research Institute, Reno, NV; Engine Emissions, Southwest Research Institute, San Antonio, TX; Statoil, Stavanger, Norway.*

P03-19. EFFECTS OF PHYSICO-CHEMICAL PROPERTIES OF ULTRAFINE PARTICLES ON THE PERFORMANCE OF AN ULTRAFINE PARTICLE CONCENTRATOR.

Tarun Gupta, Philip Demokritou, Petros Koutrakis. *Environmental Science and Engineering Program, Harvard University School of Public Health, Boston, MA.*

Workshop 4: Time-Integrated Sampling and Analysis of PM for Composition (Including Semi-Volatile Species)

Chairs: John Watson, DRI and R.K.M. Jayanty, RTI

Co-Chair: Jay Turner, Wash. U.

Tuesday, April 1, 2003

10:00 AM - 11:30 AM

Oral Session
Location: LeBateau

The first two invited presenters will speak for 20 minutes followed by four summary presentations of 12 minutes each as listed below.

OR04-01. PROBLEMS AND SOLUTIONS FOR MEASURING BLACK CARBON IN SUSPENDED PARTICLES.

Judith C Chow, John G Watson, Antony Chen, Hans Moosmuller, Peter W Barber, W Pat Arnott, William R Stockwell, Barbara Zielinska, Kochy K Fung. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV; Executive Office, AATMA, Calabasas, CA.*

OR04-02. INVITED SPEAKER: AN OVERVIEW OF PM_{2.5} CHEMICAL SPECIATION NATIONWIDE NETWORK PROGRAM.

RKM Jayanty. *Industrial and Environmental Chemistry, RTI, Research Triangle Park, NC.*

OR04-03. SUMMARY OF POSTERS: SOURCE CHARACTERIZATION AND ATTRIBUTION.

Glenn C. England. *GE-EER, Irvine, CA.*

OR04-04. SUMMARY OF POSTERS: SAMPLING AND ANALYSIS NETWORKS AND METHODS.

Walter C. Eaton. *Research Triangle Institute, Research Triangle Park, NC.*

OR04-05. SUMMARY OF POSTERS: ADVANCES IN ORGANIC CARBON METHODS.

John G. Watson. *Desert Research Institute, Reno, NV.*

OR04-06. SUMMARY OF POSTERS: SPATIAL AND TEMPORAL VARIATIONS FOR PM AND PRECURSORS.

Jeffrey R. Brook. *Environment Canada, Downsview, ON, Canada.*

Poster Session 4A: Sampling and Analyzing PM - Source Characterization and Attribution

Location: Grand Ballroom 2-4

P04-01. ELEMENTAL CONCENTRATIONS AND PARTICLE SIZE DISTRIBUTIONS OF AMBIENT AEROSOL IN METROPOLITAN AREA WITH INTENSE HIGHWAY TRAFFIC: GREATER CINCINNATI STUDY.

Dainius Martuzevicius, Sergey A. Grinshpun, Tiina Reponen, Rafal L. Gorny, Grace LeMasters, Shaohua Hu, Rafael McDonald, Pratim Biswas. *Department of Environmental Health, University of Cincinnati, Cincinnati, OH; Environmental Engineering Science, Washington University in St. Louis, St. Louis, MO.*

P04-02. CHARACTERISATION AND DETERMINATION OF POLLUTANT EMISSIONS (HYDROCARBONS AND HEAVY METALS) FROM ROAD TRAFFIC IN AN URBAN AREA.

Sam Azimi, Vincent Rocher, Regis Moilleron, Daniel Thevenot. *Centre d'Enseignement et de Recherche sur l'Eau la Ville et l'Environnement (CEREVE), University Paris XII - Val de Marne, Creteil.*

P04-03. SEASONAL, SPATIAL, AND DIURNAL VARIATIONS OF INDIVIDUAL ORGANIC COMPOUND CONSTITUENTS OF ULTRAFINE PM AND PM_{2.5} IN THE LOS ANGELES BASIN.

Philip M Fine, Bhabesh Chakrabarti, James J Schauer, Constantinos Sioutas. *Civil and Environmental Engineering, University of Southern California, Los Angeles, CA; Civil and Environmental Engineering, University of Wisconsin - Madison, Madison, WI.*

P04-04. THE PRESENCE AND POTENTIAL SOURCES OF ALKYLNITRONAPHTHALENES IN AMBIENT AIR AT LOCATIONS IN SOUTHERN CALIFORNIA.

Fabienne Reisen, Stephanie Wheeler, Janet Arey. *Air Pollution Research Center, University of California, Riverside, Riverside, CA.*

P04-05. ESTIMATION OF SECONDARY ORGANIC AEROSOL.

Yee-Lin Wu. *Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan.*

P04-06. SECONDARY ORGANIC AEROSOL CONTRIBUTION TO CARBONACEOUS PM_{2.5} CONCENTRATIONS IN PITTSBURGH.

Juan C Cabada, Spyros N Pandis, Beth Wittig, Allen L Robinson, R Subramanian, Andrea Polidori, Barbara J Turpin. *Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA; Environmental Sciences Department, Rutgers University, New Brunswick, NJ.*

P04-07. MEASUREMENTS OF PM_{2.5} CARBONACEOUS SPECIES IN RURAL AND URBAN AREAS OF SOUTHERN CALIFORNIA.

Arantzazu Eiguren-Fernandez, Antonio H Miguel, Suresh Thurairatman, Mahnaz Hakami, John R Froines, Ed Evol. *Southern California Particle Center and Supersite, University of California Los Angeles, Los Angeles, CA; COEH-SCPCS, University of California Los Angeles, Los Angeles, CA; Department of Preventive Medicine, USC Keck School of Medicine, Los Angeles, CA.*

P04-08. SOURCE RESOLUTION OF SULFATE AND TRACE ELEMENTS IN PM_{2.5} IN NEW YORK, NEW YORK.

Sumizah Qureshi, Vincent A. Dutkiewicz, Utpal K. Roychowdhury, James J. Schwab, Kenneth L. Demerjian, Liaquat Husain. *Department of Environmental Health and Toxicology, School of Public Health, State University of New York at Albany, Albany, NY; NYS Department of Health, Wadsworth Center, Albany, NY; Atmospheric Sciences Research Center, State University of New York at Albany, Albany, NY.*

P04-09. AMBIENT PM_{2.5} DURING A HEAVY POLLUTED EPISODE IN HEATING SEASON IN BEIJING, CHINA.

Fumo Yang, Kebin He, Liang Ma, Steven H Cadle, Tai Chan, Patricia A Mulawa. *Department of Environmental Science and Engineering, Tsinghua University, Beijing, China; GM Research and Development Center, Warren, MI.*

P04-10. CHEMICAL SPECIATION OF PM-2.5 COLLECTED DURING PRESCRIBED FIRES OF THE COCONINO NATIONAL FOREST IN FLAGSTAFF AZ.

Marin Robinson, Molly Robinson, Sergio Velazquez, Jesus Chavez, Min Zhao, R.K.M. Jayanty. *Department of Chemistry, Northern Arizona University, Flagstaff, AZ; Environmental Sciences and Engineering, Research Triangle Institute, Research Triangle Park, NC.*

P04-11. PARTICLE SIZE DISTRIBUTIONS OF UNRESOLVED COMPLEX MIXTURE FROM RESIDENTIAL WOOD COMBUSTION AS DETERMINED BY DIRECT THERMAL DESORPTION-GC/MS.

Michael D Hays, Norman D Smith, John Kinsey, Yuanji Dong. *National Risk Management Research Laboratory, United States Environmental Protection Agency, Research Triangle Park, NC; ARCADIS, Geraghty, and Miller, Research Triangle Park, NC.*

P04-12. INFLUENCE OF CANADIAN FOREST FIRE ON MEASUREMENTS OF CARBONACEOUS COMPOUNDS IN FINE PARTICULATE MATTER DURING THE 2002 PHILADELPHIA SUMMER INTENSIVE PARTICULATE MATTER PROGRAM.

Cheol-Heon Jeong, Doh-Won Lee, Eugene Kim, Philip K Hopke. *Civil and Environmental Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY.*

P04-13. POST HARVEST BIOMASS BURNING AEROSOLS AND THEIR IMPACT ON AIR QUALITY IN GWANGJU, KOREA.

Young J. Kim, Seong Y. Ryu, Jeong E. Kim. *Environmental Science and Engineering, Kwangju Institute of Science and Technology(KJIST), Gwangju, Korea.*

P04-14. AGGLOMERATION AND ADSORPTION OF FINE CARBONACEOUS PARTICLES ONTO ASIAN DUST PARTICLES.

Kyung W. Kim, Young J. Kim. *ADEMRC (ADvanced Environmental Monitoring Research Center) Department of Environmental Science and Engineering, Kwangju Institute of Science and Technology, Kwangju, Korea.*

P04-15. CHARACTERIZATION OF PARTICULATE EMISSIONS FROM A COMBUSTION BOILER WITH DUAL FUEL CAPACITY.

Oliver M.C. Chang, Glenn England, Stephanie Wien. *Energy and Environmental Research Corp., GE, Irvine, CA.*

P04-16. AIRBORNE AND DEPOSITED BACTERIA NEAR A WASTE WATER TREATMENT PLANT.

Ashish K Sahu, Thomas Holsen, Stefan Grimberg. *Civil and Environmental Engineering, Clarkson University, Potsdam, NY.*

Poster Session 4B: Sampling and Analyzing PM - Sampling and Analysis Networks and Methods

Location: Grand Ballroom 2-4

P04-17. DETECTION AND QUANTIFICATION CAPABILITIES OF MEASUREMENT SYSTEMS.

Lloyd A. Currie, Jeffrey L. West. *ARL/AMD, NOAA, Research Triangle Park, NC.*

P04-18. COMPLEXITY IN FILTER HANDLING AND SHIPPING IN PM_{2.5} CHEMICAL SPECIATION NETWORK OPERATIONS.

Jessie A. Deal, James A. O'Rourke. *EG, RTI, RTP, NC.*

P04-19. MEASURE OF IONS IN PM_{2.5} FILTERS.

Eva D. Hardison, David L. Hardison, Christine C. Van Hise. *EG, RTI, RTP, NC.*

P04-20. ASSURING COMPARABILITY BETWEEN MULTIPLE X-RAY FLUORESCENCE INSTRUMENTS USED IN THE PM_{2.5} CHEMICAL SPECIATION PROGRAM.

Andrea C. McWilliams, James B. Flanagan, William F. Gutknecht, RKM Jayanty. *EICD, RTI, RTP, NC.*

P04-21. ESTIMATING ANALYTICAL MEASUREMENT UNCERTAINTY FOR THE PM_{2.5} CHEMICAL SPECIATION PROGRAM.

James B. Flanagan, Max R. Peterson, William F. Gutknecht, Andrea C. McWilliams. *EG, RTI, RTP, NC.*

P04-22. DATA VALIDATION AND QUALITY ASSURANCE FOR THE CHEMICAL SPECIATION TRENDS NETWORK.

James B. Flanagan, Jessie A. Deal, James A. O'Rourke, Edward E. Rickman. *EICD, RTI, RTP, NC.*

P04-23. USING ULTRAFINE CONCENTRATORS TO INCREASE THE HIT RATE OF SINGLE PARTICLE MASS SPECTROMETERS.

Yongjing Zhao, Keith J. Bein, Anthony S. Wexler, Chandan Misra, Philip M. Fine, Constantinos Sioutas. *Mechanical and Aeronautical Engineering, University of California at Davis, Davis, CA; Department of Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P04-24. THE DEVELOPMENT AND TESTING OF A SEQUENTIAL PM_c (COARSE) AMBIENT PARTICULATE SAMPLER.

T. Merrifield, G. Ruffolo. *BGI Instruments, Waltham, MA; TCR Tecora, Milano, Italy.*

P04-25. POLICY IMPLICATIONS OF PM_{2.5} FEDERAL REFERENCE METHOD PERFORMANCE RELATIVE TO MASS BALANCE CLOSURE.

Sarah L Rees, Allen L Robinson, Andrey Khlystov, Charles O Stanier, Spyros N Pandis. *Civil and Environmental Engineering, Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA; Mechanical Engineering, Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA; Chemical Engineering, Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA.*

P04-26. SEMI-VOLATILE PM_{2.5} MATERIAL ALONG THE WASATCH FRONT.

Norman L Eatough, Russell W Long, Delber J Eatough, William E Wilson. *Chemistry & Biochemistry, Brigham Young University, Provo, UT; US EPA, Research Triangle Park, NC.*

P04-27. NUMBER CONCENTRATIONS OF PARTICLES CONTAINING SPECIFIC CHEMICAL COMPONENTS.

Murray V Johnston, Michael P Tolocka, Derek A Lake, Anthony S Wexler. *Chemistry and Biochemistry, University of Delaware, Newark, DE; Mechanical and Aeronautical Engineering, Civil and Environmental Engineering, Land, Air and Water Resources, University of California, Davis, Davis, CA.*

P04-28. A MULTI-SITE INTERCOMPARISON OF SEMI-CONTINUOUS CARBON, NITRATE AND SULFATE MONITORS.

Jim Homolya, Steve Taylor-Jr, Jewell Smiley, Darcy Anderson, Mark Bohlin, Jim Frost, Ed Michel, Stan Pausel. *OAQPS/Monitoring and Quality Assurance Group, US Environmental Protection Agency, Research Triangle Park, NC; National Air and Radiation Environmental Laboratory, US Environmental Protection Agency, Montgomery, AL; Arizona Department of Environmental Quality, Phoenix, AZ; Cook County Air Pollution Laboratory, Maywood, IL; Washington State Department of Ecology, Bellevue, WA; Texas Commission on Environmental Quality, Austin, TX; Indiana Department of Environmental Management, Indianapolis, IN.*

P04-29. CONTINUOUS PM 2.5 MASS BY THE DIFFERENTIAL TEOM® MONITOR AND A CONTINUOUS SIZE SEGREGATED NITRATE MONITOR IN CLAREMONT CALIFORNIA: EVALUATION OF THE DYNAMICS OF NITRATE VOLATILIZATION.

Peter A. Jaques, Jeffrey L. Ambs, Susanne Hering, Philip M. Fine, Constantinos Sioutas. *Southern California Particle Center and Supersite, UCLA, Los Angeles, CA; Rupprecht & Patashnick Co., Inc., R&P, Albany, NY; Aerosol Dynamics, Inc., ADI, Berkeley, CA; Civil and Environmental Engineering, USC, Los Angeles, CA.*

P04-30. PRELIMINARY RESULTS OF EPA'S PERFORMANCE EVALUATION OF FEDERAL REFERENCE METHODS AND FEDERAL EQUIVALENT METHODS FOR COARSE PARTICULATE MATTER.

Paul Solomon, Tom Ellestat, Teri Conner, Roy Zweidinger, Mary Harmon, Robert Vanderpool, Bob Murdoch, Sanjay Natarajan, Chris Noble, Tim Hanley, Lee Byrd, Richard Scheffe. *Office of Research and Development, US EPA, Las Vegas, NV; Office of Research and Development, US EPA, RTP, NC; Research Triangle Institute, US EPA, Raleigh, NC; Office of Air Quality Planning and Standards, US EPA, Raleigh, NC.*

P04-31. SAMPLING ARTIFACTS OF ACIDITY AND IONIC SPECIES OF PM_{2.5}.

Ravi Kant Pathak, Xiaohong Yao, Ming Fang, Chak Keung Chan. *Chemical Engineering, Hong Kong University of Science and Technology, Hong Kong; Institute for Environment and Sustainable Development, Hong Kong University of Science and Technology, Hong Kong.*

P04-32. EFFECT OF NITRATE VOLATILIZATION ON MEASURED GRAVIMETRIC MASS IN CALIFORNIA AND IN THE IMPROVE NETWORK.

Lowell L Ashbaugh, Robert A Eldred. *Crocker Nuclear Laboratory, University of California, Davis, CA.*

P04-33. SPECIATION OF AEROSOL PARTICULATE MATTER BY SEPARATING AND QUANTIFYING THE VOLATILE AND INVOLATILE AS WELL AS THE SOLUBLE AND WATER-INSOLUBLE FRACTIONS.

Klaus Wittmaack, Lothar Keck, Norbert Menzel. *Institute of Radiation Protection, GSF-National Research Center, Neuherberg, Germany; Institute of Radiation Protection, GSF-National Research Center, Neuherberg, Germany; Institute of Radiation Protection, GSF-National Research Center, Neuherberg, Germany.*

P04-34. DEVELOPMENT AND EVALUATION OF AN ELECTROSTATIC COLLECTOR FOR SEMI-VOLATILE PM_{2.5}.

Elizabeth M Howard, Reist Parker. *National Risk Management Research Laboratory, U. S. EPA, Research Triangle Park, NC; Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC.*

P04-35. INFORMATION FROM IONS IN EXTRACTS FROM ACIDIC GAS DENUDERS USED IN THE PM_{2.5} CHEMICAL SPECIATION SAMPLING NETWORK.

Walter C. Eaton, Eva D. Hardison, Constance V. Wall. *EG, RTI, RTP, NC.*

P04-36. MEASUREMENT UNCERTAINTY IN THE DETERMINATION OF FINE PARTICLE MASS AND MASS CONCENTRATIONS OF SULFATE AND TRANSITION METALS.

James J Schwab, H D Felton, Liaquat Husain, Kenneth L Demerjian. *Atmospheric Sciences Research Center, University at Albany - State University of New York, Albany, NY; Bureau of Air Quality Surveillance, New York State Department of Environmental Conservation, Albany, NY; Wadsworth Center, New York State Department of Health, Albany, NY.*

P04-37. THE EXPERIMENTAL INVESTIGATION OF AEROSOL PARTICLES IN THE DYNAMIC THERMAL DIFFUSION CHAMBER.

Paul Mirgorod, Gennady Lipatov. *Physical Department, Mechnikov Odessa National University, Odessa, Ukraine; Physical Department, Mechnikov Odessa National University, Odessa, Ukraine.*

P04-38. NICKEL SPECIATION OF URBAN PARTICULATE MATTER.

Kevin C. Galbreath, Charlene R. Crocker, Carolyn M. Nyberg, Nicholas V.C. Ralston, Frank E. Huggins, Gerald P. Huffman. *Energy & Environmental Research Center, University of North Dakota, Grand Forks, ND; Department of Chemical and Materials Engineering, University of Kentucky, Lexington, KY.*

P04-39. AEROSOL ANALYSIS BY ICP-MS: PROBLEMS, SOLUTIONS, AND APPLICATIONS.

Martin M Shafer, James J Schauer. *Environmental Chemistry & Technology, University of Wisconsin-Madison, Madison, WI.*

Poster Session 4C: Sampling and Analyzing PM - Advances in Organic Carbon Methods

Location: Grand Ballroom 2-4

P04-40. EQUIVALENCE OF CARBON FRACTIONS FROM DIFFERENT THERMAL EVOLUTION METHODS AT THE FRESNO SUPERSITE.

John G Watson, Judith C Chow, Antony Chen, Hans Moosmuller, W. Pat Arnott, Dale J Crow, Kochy K Fung, Peter Ouchida. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV; Executive Office, AATMA, Calabasas, CA; Monitoring and Laboratory Division, California Air Resources Board, Sacramento, CA.*

P04-41. HOW DOES THERMAL-OPTICAL ANALYSIS FOR BLACK CARBON IN PM BEHAVE OPTICALLY?

Joseph M. Conny, Donna B. Klinedinst. *Surface and Microanalysis Science Division, National Institute of Standards and Technology, Gaithersburg, MD.*

P04-42. NIST PROGRAM FOR FORMATION AND CHARACTERIZATION OF ENGINEERED AEROSOL PARTICULATES: ADDRESSING NEEDS FOR GLOBAL CLIMATE CHANGE.

Cary Presser, Joseph Conny, George Klouda, R. Michael Verkouteren. *Chemical Science and Technology Laboratory, National Institute of Standards and Technology, Gaithersburg, MD.*

P04-43. AMBIENT POLLUTANT CONCENTRATIONS MEASURED BY MOBILE LABORATORY IN SOUTH BRONX, NY.

Polina B. Maciejczyk, John H. Offenber, Shao-I Hsu, George D. Thurston, Lung Chi Chen. *Nelson Institute of Environmental Medicine, NYU School of Medicine, Tuxedo, NY; Department of Environmental Science, Rutgers, The State University of New Jersey, New Brunswick, NJ.*

P04-44. EXAMINING THE ASSUMPTIONS BEHIND ELEMENTAL CARBON MEASUREMENTS USING THE THERMAL-OPTICAL TRANSMITTANCE TECHNIQUE.

R Subramanian, Andrey Y Khlystov, Allen L Robinson. *Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

P04-45. THE DEVELOPMENT AND EVALUATION OF POROUS FOAM AS A DENUDER FOR A PERSONAL ORGANIC PARTICULATE MATTER SAMPLER.

Kris Andress, Delbert J Eatough. *Chemistry & Biochemistry, Brigham Young University, Provo, UT; Chemistry & Biochemistry, Brigham Young University, Provo, UT.*

P04-46. PARTICULATE CARBON AND GAS/PARTICLE PARTITIONING OF HYDROCARBONS IN SEATTLE.

Lara A Gundel, Yanbo Pang, Timothy Gould, L.-J. Sally Liu, Candis S Claiborn. *Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Berkeley, CA; Department of Civil and Environmental Engineering, Washington State University, Pullman, WA; Department of Environmental Health, University of Washington, Seattle, WA; Department of Civil and Environmental Engineering, University of Washington, Seattle, WA.*

P04-47. SEMI-VOLATILE ORGANIC SPECIES DURING THE TEXAS AIR QUALITY STUDY - 2000: PARTICULATE CARBON AND GAS/PARTICLE PARTITIONING OF HYDROCARBONS.

Erick Swartz, Douglas A. Lane, Cristian Mihele, Yanbo Pang, Leonard Stockburger, Lara A Gundel. *National Exposure Research Laboratory, US Environmental Protection Agency, Research Triangle Park, NC; Air Quality Processes Research Division, Environment Canada, Toronto, ON, Canada; Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Berkeley, CA.*

P04-48. INTERLABORATORY COMPARISON STUDIES FOR CHARACTERIZATION OF ORGANIC COMPOUNDS IN PARTICULATE MATTER.

Michele M Schantz, Stephen A Wise, Joellen Lewtas. *Analytical Chemistry Division, NIST, Gaithersburg, MD; NERL, Manchester Lab, US EPA, Port Orchard, WA.*

P04-49. ANALYSIS OF POLAR ATMOSPHERIC ORGANIC COMPOUNDS USING LIQUID CHROMATOGRAPHY/ MASS SPECTROMETRY ATMOSPHERIC PRESSURE PHOTOIONIZATION (LC/MS APPI).

Monica A Mazurek, Patricia L Atkins. *Civil & Environmental Engineering, Rutgers University, Piscataway, NJ.*

P04-50. ANALYSIS OF OXYGENATED ORGANICS WITH HIGH PERFORMANCE LIQUID CHROMATOGRAPHY/ION TRAP MASS SPECTROMETRY.

Chris A Jakober, M J Charles, Peter G Green, John M Hughes. *Environmental Toxicology, University of California, Davis, Davis, CA; Civil and Environmental Engineering, University of California, Davis, Davis, CA; Agilent Technologies, Pleasanton, CA.*

P04-51. FAST ANALYSIS OF SVOC IN THE PM_{2.5} FRACTION OF AMBIENT AEROSOL FOR USE IN EPIDEMIOLOGICAL STUDIES.

Juergen Schnelle-Kreis, Ralf Zimmermann. *Chemistry, BfA - Bavarian Institute of Applied Environmental Research and Technology, Augsburg, Germany; Institute of Ecological Chemistry, GSF - National Research Center for Environment and Health, Munich, Germany; Analytical Chemistry, University of Augsburg, Augsburg, Germany.*

P04-52. SIZE DISTRIBUTION OF NITRO-PAHS IN THE BALTIMORE, MD ATMOSPHERE.

Bernard S Crimmins, Holly A Bamford, Joel E Baker. *Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, MD.*

P04-53. THE DISTRIBUTION OF PARTICULATE POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) IN THE ATLANTIC AND INDIAN OCEAN ATMOSPHERES.

Bernard S Crimmins, Joel E Baker, Russell R Dickerson, Bruce G Dodderidge. *Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, MD; Department of Meteorology, University of Maryland, College Park, MD.*

P04-54. CHLORDANES IN THE INDOOR AND OUTDOOR AIR OF THREE US CITIES.

John H Offenber, Yelena Naumova, Steven J Eisenreich, Barbara J Turpin, Clifford P. Weisel, Maria Morandi, Thomas Stock Stock, Steven Colome, Arthur Weiner. *Department of Environmental Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ; Environmental and Occupational Health Sciences Institute, EOHSI, Piscataway, NJ; School of Public Health, University of Texas, Houston Health Science Center, Houston, TX; Integrated Environmental Sciences, Irvine, CA; School of Public Health, UCLA, Los Angeles, CA.*

P04-55. COMPARISON OF SEMI-VOLATILE ORGANIC COMPOUNDS FROM WILDFIRE EMISSION DOMINATED AMBIENT SAMPLES TO RESIDENTIAL AND AGRICULTURAL WOOD COMBUSTION SOURCE SAMPLES.

Lynn R. Rinehart, Anna E. Cunningham, Barbara Zielinska. *Division of Atmospheric Science, Desert Reserch Institute, Reno, NV.*

P04-56. SEMI-VOLATILE AND PARTICLE-ASSOCIATED NITRO-PAH AS MARKERS OF DAYTIME OH RADICAL-INITIATED OR NIGHTTIME NO₃ RADICAL-INITIATED ATMOSPHERIC REACTIONS OF GAS-PHASE PAH.

Janet Arey, Roger Atkinson. *Air Pollution Research Center, University of California, Riverside, Riverside, CA.*

Poster Session 4D: Sampling and Analyzing PM - Spatial and Temporal Variation for PM and Precursors

Location: Grand Ballroom 2-4

P04-57. THE VARIATION OF BACKGROUND PARTICULATE MATTER IN THE UNITED STATES.

Allen S Lefohn, Joseph P Pinto, Douglas S Shadwick. *A.S.L. & Associates, Helena, MT; National Center for Environmental Assessment, U.S. Environmental Protection Agency, Research Triangle Park, NC; Chapel Hill, NC.*

P04-58. PARTICULATE MATTER CHARACTERISTICS IN THE URBAN AREAS OF LOWER MANHATTAN AND THE BRONX, NEW YORK.

L R Wilson, D A Luttinger, J A Hunt, V Ferraro, L Husain, S A Hwang, P Galvin, K A Mazor, P M Palmer, D Lince, D P Sharron. *Center for Environmental Health, New York State Department of Health, Troy, NY; Agency for Toxic Substances and Disease Registry, Atlanta, GA; New York State Energy Research & Development Authority, Albany, NY; Wadsworth Center for Laboratories and Research, New York State Department of Health, Albany, NY; New York State Department of Environmental Conservation, Albany, NY.*

P04-59. URBAN AND RURAL CHEMICAL COMPOSITION OF FINE PARTICULATE MATTER IN NEW YORK STATE.

James J Schwab, H D Felton, Kevin Civerolo, Liaquat Husain, Kenneth L Demerjian. *Atmospheric Sciences Research Center, University at Albany - State University of New York, Albany, NY; Bureau of Air Quality Surveillance, New York State Department of Environmental Conservation, Albany, NY; Wadsworth Center, New York State Department of Health, Albany, NY.*

P04-60. THE BALTIMORE SUPERSITE PROJECT: HIGHLY TIME AND SIZE RESOLVED CONCENTRATIONS OF URBAN PM_{2.5} AND ITS CONSTITUENTS FOR RESOLUTION OF SOURCES AND IMMUNE RESPONSES.

John M Ondov, T. J. Buckley, P. K. Hopke, M. V. Johnston, M. B. Parlange, W. F. Rogge, K. S. Squibb, A. S. Wexler. *Department of Chemistry and Biochemistry, University of Maryland, College Park, MD; Johns Hopkins University, Baltimore, MD; Clarkson University, Potsdam, NY; University of Delaware, Newark, DE; Florida International University, Miami, FL; University of Maryland at Baltimore, Baltimore, MD; University of California, Davis, CA.*

P04-61. TRANSIENT ELEVATIONS IN THE CONCENTRATIONS OF SULFATE, NITRATE, AND EC/OC MEASURED WITH SEMICONTINUOUS MONITORS AT THE BALTIMORE SUPERSITE.

Seung Shik Park, David Harrison, John M. Ondov, Michael P. Tolocka, Derek A. Lake, Murray V. Johnston. *Department of Chemistry and Biochemistry, University of Maryland, College Park, MD; Department of Chemistry and Biochemistry, University of Delaware, Newark, DE.*

P04-62. COMPARATIVE EVALUATION OF AMBIENT FINE PARTICULATE MATTER (PM_{2.5}) DATA OBTAINED FROM URBAN AND RURAL MONITORING SITES ALONG THE UPPER OHIO RIVER VALLEY.

Robinson P Khosah, Terence J McManus. *Science & Technology, Advanced Technology Systems, Inc., Pittsburgh, PA.*

P04-63. SPATIAL VARIATIONS OF PM_{2.5} DURING INTENSIVE SAMPLING OF PITTSBURGH AIR QUALITY STUDY.

Wei Tang, Cliff I Davidson, Timothy M Raymond, Spyros N Pandis, Beth Wittig, Andrey Khlystov, Allen L Robinson. *Department of Civil & Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA; Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA; Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

P04-64. SOUTHEASTERN AEROSOL RESEARCH AND CHARACTERIZATION (SEARCH) STUDY: SPATIAL AND TEMPORAL SUMMARY OF FINE PARTICULATE MATTER COMPOSITION.

John J Jansen, Eric S Edgerton, Benjamin E Hartsell, Krishnan Kandasamy. *Research & Environmental Affairs, Southern Company, Birmingham, AL; Atmospheric Research & Analysis, Inc., Cary, NC; Atmospheric Research & Analysis, Inc., Plano, TX.*

P04-65. AN ANALYSIS OF URBAN SPECIES DATA - A TALE OF TWO CITIES.

Shao-Hang Chu, Joseph W. Paisie, Ben W.-L. Jang. *OAQPS (MD-C504-02), U.S. Environmental Protection Agency, Research Triangle Park, NC; U.S. Environmental Protection Agency, Research Triangle Park, NC; Texas A & M University, Department of Chemistry, Commerce, TX.*

P04-66. FREQUENCY DISTRIBUTIONS AND SPATIAL ANALYSIS OF FINE PARTICLE MEASUREMENTS IN ST. LOUIS DURING THE REGIONAL AIR POLLUTION STUDY / REGIONAL AIR MONITORING SYSTEM.

Eugene Kim, Philip K Hopke, Joseph P Pinto, William E Wilson. *Chemical Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY; U.S. Environmental Protection Agency, Research Triangle Park, NC; U.S. Environmental Protection Agency, Research Triangle Park, NC.*

P04-67. SPATIAL AND SEASONAL VARIATION, SIZE FRACTIONATION, AND CHEMICAL CHARACTERIZATION OF PARTICULATE MATTER IN DETROIT, MICHIGAN.

J. T. Dvonch, G. J. Keeler, F. Y. Yip, T. G. Robins, F. J. Marsik, M. Morishita, E. A. Parker, M. Sam. *Environmental Health Sciences, University of Michigan, Ann Arbor, MI; Health Behavior and Health Education, University of Michigan, Ann Arbor, MI; Environmental Health, Detroit Health Department, Detroit, MI.*

P04-68. CHARACTERIZATION OF FINE PARTICULATE MATTER (PM_{2.5}) IN CENTRAL AND SOUTHEAST OHIO.

Kuruvilla John, Amol Kulkarni, Kevin C Crist. *Environmental Engineering, Texas A&M University - Kingsville, Kingsville, TX; Environmental Engineering, Texas A&M University - Kingsville, Kingsville, TX; School of Health Sciences, Ohio University, Athens, OH.*

P04-69. CHARACTERIZATION OF TOXIC OF COMPOUND IN ATMOSPHERIC PARTICULATE MATTER IN CATAÑO, PUERTO RICO.

Luz S Betancourt, Osvaldo Rosario. *Department of Chemistry, University of Puerto Rico, PO Box 23346, San Juan, PR.*

P04-70. SIZE SEGREGATED CHARACTERIZATION OF PM₁₀, PM_{2.5}, PM₁ AND LONGTERM MEASUREMENTS OF PM₁₀ DOWNWIND OF A LARGE CONURBATION IN GERMANY.

Gerald Spindler, Erika Brüggemann, Thomas Gnauk, Konrad Müller, Hartmut Herrmann. *Chemistry, Intitut für Troposphärenforschung e.V., Leipzig, Germany.*

P04-71. SEASONAL TREND OF THE PHYSICO-CHEMICAL CHARACTERISTICS OF PM_{2.1}: A STUDY BY SEM/EDX AND XPS IN AN URBAN AREA OF ROME.

Barbara De Berardis, Lorenzo Arrizza, Marco Inglessis, Maurizio Mosca, Luigi Paoletti. *Laboratorio di Ultrastrutture, Istituto Superiore di Sanità, Rome, Italy; Centro di Microscopia Elettronica, Università dell'Aquila, L'Aquila, Italy; Laboratorio di Igiene Ambientale, Istituto Superiore di Sanità, Rome, Italy; Laboratorio di Alimenti, Istituto Superiore di Sanità, Rome, Italy.*

P04-72. CHEMICAL COMPOSITION OF PM_{2.5} AND NUMBER CONCENTRATION MEASURED AT LITHUANIAN COASTAL ENVIRONMENT.

Vidmantas Ulevicius, Dalia Jasineviciene, Genrik Mordas, Jelena Andriejauskiene. *Environmental Physics and Chemistry, Institute of Physics, Vilnius, Gostauto-12, Lithuania.*

P04-74. ENVIRONMENTAL DETERMINANTS OF THE METAL CONTENT OF AIRBORNE PARTICLES IN EDINBURGH.

Mathew R Heal, Leon R Hibbs, Iain J Beverland, Raymond M Agius. *School of Chemistry, University of Edinburgh, Edinburgh, United Kingdom; Department of Civil Engineering, University of Strathclyde, Glasgow, United Kingdom; Centre for Occupational and Environmental Health, University of Manchester, Manchester, United Kingdom.*

P04-75. CONCENTRATION LEVEL OF FINE AIRBORNE LEAD AND ITS RELATIONSHIP WITH OTHER CHEMICAL SPECIES IN BEIJING, CHINA.

FengKui Duan, KeBin He, YongLiang Ma, FuMo Yang, Qiang Zhang, Steven Cadle, Tai Chan. *Department of Environmental Science and Engineering, Tsinghua University, Tsinghua University, Beijing, China; GM Research & Development, 480-106-269, Warren, MI.*

P04-76. PM_{2.5} AND PM₁₀ MASS CONCENTRATIONS IN PORTUGAL.

Carmo Freitas, Miguel Reis, Adriano Pacheco. *ITN, Nuclear and Technological Institute, Sacavém, Portugal; CVRM-IST, Technical University of Lisbon, Lisboa, Portugal.*

P04-77. HOW MANY MEASUREMENTS FOR EXPOSURE ASSESSMENT? BALANCING COST AND PRECISION FOR AN OPTIMUM ENVIRONMENTAL SAMPLING OF AMBIENT AEROSOL.

Rakesh Shukla, Junxiang Luo, Linda Levin, Sergey A. Grinshpun, Tiina Reponen, Daninius Martuzevicius, Pratim Biswas, Grace K. LeMasters. *Environmental Health, University of Cincinnati, Cincinnati, OH; Environmental Engineering Science, Washington University in St. Louis, St. Louis, MO.*

Workshop 5: Emissions: Measurement, Characterization, and Modeling

Chair: Tom E. Pierce, EPA
Co-Chair: Brent Bailey, Coordinating Research Council
Tuesday, April 1, 2003
10:00 AM - 11:30 AM

Oral Session

Location: Kings Garden South

A discussion period will follow these two presentations.

OR05-01. STATUS OF THE NATIONAL EMISSIONS INVENTORY (NEI) FOR PM_{2.5} AND ITS PRECURSORS.

Thompson G. Pace. *Emissions, Monitoring & Analysis Div, D205-01, US EPA, RTP, NC.*

OR05-02. SENSITIVITY OF AEROSOL FORMATION TO EMISSION UNCERTAINTIES.

John Seinfeld, Donald Dabdub. *Caltech; University of California at Irvine.*

Poster Session

Location: Grand Ballroom 2-4

P05-01. ATMOSPHERIC EMISSIONS OF AMMONIA FROM DAIRY FARMS.

Robert W Pinder, Natalie J Anderson, Ross Strader, Cliff I Davidson, Peter J Adams. *Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA; Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA; Civil and Environmental Engineering and Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA.*

P05-02. CONTRIBUTION OF FUGITIVE DUST TO REGIONAL PM.

John M Veranth, Raed Labban, John G Watson, Judith C Chow, Vic Ectymezian. *Department of Chemical and Fuels Engineering, University of Utah, Salt Lake City, UT; Desert Research Institute, Reno, NV.*

P05-03. PROGRESS TOWARD A DUST EMISSIONS MODEL FOR THE COLUMBIA PLATEAU.

Brenton S Sharratt. *USDA-ARS, Washington State University, Pullman, WA.*

P05-04. A 200-M TALL INSTRUMENTED TOWER FOR PM AND METEOROLOGICAL MEASUREMENTS IN FUGITIVE DUST EVENTS.

Thomas E Gill. *Wind Science and Engineering Research Center, Texas Tech University, Lubbock, TX.*

P05-05. PM₁₀ EMISSIONS FACTORS FOR UNPAVED ROADS: CORRECTION FOR NEAR-FIELD DEPOSITION.

Vic Etyemezian, Dale Gillette, John Gillies, Hampden Kuhns, Djordje Nikolic, John Veranth, John Watson. *Division of Atmospheric Sciences, Desert Research Institute, Las Vegas, NV; ARL, NOAA, Research Triangle Park, NC; University of Utah, Salt Lake City, UT.*

P05-06. ESTIMATING SURFACE PARTICLE EMISSION AND HUMAN EXPOSURE IN URBAN STREET CANYONS.

Galen A Hon. *Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA.*

P05-07. EFFECT OF OPERATING VARIABLES ON PM EMISSIONS FROM WOODSTOVES.

Jennifer S Jarabek, Fernando Preto. *CANMET Energy Technology Centre, Natural Resources Canada, Nepean, ON, Canada; CANMET Energy Technology Centre, Natural Resources Canada, Nepean, ON, Canada.*

P05-08. ESTIMATING PM EXPOSURE FROM WOOD SMOKE IN RESIDENTIAL NEIGHBORHOODS DURING WINTERTIME INVERSIONS.

Terry E. Baxter. *Civil and Environmental Engineering, Northern Arizona University, Flagstaff, AZ.*

P05-09. GENERATION RATES AND EMISSION FACTORS OF PARTICULATE MATTER AND POLYCYCLIC AROMATIC HYDROCARBONS OF INCENSE STICKS.

Candice S-C Lung, Tzu-Yao Wen, Mei-Hsuan Chiu, Chung-Jen Chao, Hsueh-Wen Tseng. *Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan; Department of Public Health, Chung Shan Medical University, Taichung, Taiwan.*

P05-10. FENCELINE SAMPLING ADJACENT TO A LARGE COKE PRODUCTION FACILITY IN PITTSBURGH, PA.

Emily A Weitkamp, Eric Lipsky, Allen Robinson, Natalie Anderson, Heather Leifeste, R Subramanian, Juan Cabada-Amaya, Andrey Khlystov, Charles Stanier, Leonard Lucas, Satoshi Takahama, Beth Wittig, Cliff Davidson, Spyros Pandis, Andrea Polidori, Ho-Jin Lim, Barbara Turpin, Patrick Pancras, John Ondov. *Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA; Civil Engineering, Carnegie Mellon University, Pittsburgh, PA; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA; Environmental Sciences, Rutgers University, New Brunswick, NJ; Chemistry and Biochemistry, University of Maryland, Baltimore, MD.*

P05-11. COMBINING XAFS SPECTROSCOPY AND LEACHING FOR THE SPECIATION OF ELEMENTS IN PM.

Frank E Huggins, Sidhartha Pattanaik, Gerald P Huffman, William P Linak, C. Andrew Miller. *CFFS/CME, University of Kentucky, Lexington, KY; NRMRL, U.S. EPA, Research Triangle Park, NC.*

P05-12. CCSEM ANALYSES OF FINE PM DERIVED FROM THE COMBUSTION OF COAL AND RESIDUAL OIL.

Yuanzhi Chen, Frank E Huggins, Naresh Shah, Gerald P Huffman, William P Linak, C A Miller. *CFFS/CME, University of Kentucky, Lexington, KY; NRMRL, US EPA, Research Triangle Park, NC.*

P05-13. PARTICULATE CARBON EMISSIONS FROM COAL FIRED POWER PLANTS: STACK TESTING AND FIELD OBSERVATIONS.

Eric S. Edgerton, Peter K. Mueller, Larry S. Monroe, John J. Jansen, Callie J. Waid. *HQ, Atmospheric Research & Analysis, Inc., Cary, NC; Data Management, Atmospheric Research & Analysis, Inc., Plano, TX; Southern Company, Birmingham, AL; Headquarters, TropoChem, Palo Alto, CA.*

P05-14. MEASUREMENT OF PM_{2.5} EMISSION FROM STATIONARY SOURCE: BIAS IN TRADITIONAL SAMPLING METHOD AND THE DEVELOPMENT OF DILUTION SAMPLING TECHNOLOGY.

Oliver M.C. Chang, Glenn C. Glenn, Stephanie Wien. *Energy and Environmental Research Corp., GE, Irvine, CA.*

P05-15. ESTIMATION OF TRACE-ELEMENTS EMISSION BY LIGHT-DUTY VEHICLES IN SAO PAULO METROPOLITAN AREA, BRAZIL.

Maria Fatima Andrade, Odon Roman Sanchez-Ccoyllo, Regina Maura Miranda, Rita Yuri Ynoue, Sergio Amaral. *Departamento de Ciências Atmosféricas, Universidade de São Paulo, São Paulo, São Paulo, Brazil.*

P05-16. IN-USE VEHICLE EMISSIONS SOURCE CHARACTERIZATION STUDY: SQUIRREL HILL TUNNEL, PITTSBURGH, PA.

Eric M Lipsky, Allen Robinson, Natalie Anderson, Heather Leifeste, R Subramanian, Juan Cabada-Amaya, Sarah Rees, Andrey Khlystov, Charles Stanier, Leonard Lucas Satoshi Takahama, Beth Wittig, Cliff Davidson, Spyros Pandis, Andrea Palidori, Ho-Jin Lim, Barbara Turpin. *Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA; Civil Engineering, Carnegie Mellon University, Pittsburgh, PA; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA; Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA; Environmental Sciences, Rutgers University, New Brunswick, NJ.*

P05-17. GAS AND PARTICLE EMISSION RATES AND SOURCE PROFILES FROM NON-ROAD MILITARY DIESEL ENGINES.

John G. Watson, Wayne Miller, Hans Moosmuller, Hampden D Kuhns, Peter W Barber, W. Pat Arnott, Judith C Chow, Barbara Zielinska, David R Cocker. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV; College of Engineering-Center for Environmental Research and Technology, University of California, Riverside, CA.*

P05-18. MEASUREMENT OF PARTICULATE MATTER EMISSIONS FACTORS FROM IN-USE MOTOR VEHICLES USING LIDAR.

Hampden D Kuhns, Peter W Barber, Hans Moosmuller, John G Watson. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV.*

P05-19. RELATIONSHIPS BETWEEN THE CHEMICAL COMPOSITION OF BRAKE PADS AND BRAKE WEAR EMISSIONS.

Glynis C Lough, Martin M Shafer, James J Schauer. *Environmental Chemistry and Technology Program, University of Wisconsin - Madison, Madison, WI.*

P05-20. THE FORMATION OF NANOPARTICLES IN THE ATMOSPHERE FROM DIESEL AND NATURAL GAS STATIONARY ENGINES.

Thang Q. Dam, John M. Storey, W. Keith Kahl, Meng-Dawn Cheng, John Harding, Rick Langley. *Fuels, Engines, and Emissions Research Center, Oak Ridge National Laboratory, Knoxville, TN; Environmental Sciences Division, Oak Ridge National Laboratory, TN; EPRI-PEAC, Knoxville, TN.*

P05-21. MEASURED REAL-WORLD TRAFFIC EMISSION FACTORS OF PARTICLE NUMBER SIZE DISTRIBUTION AND MASS IN STOCKHOLM, SWEDEN.

Adam Kristensson, Erik Swietlicki, Lars Gidhagen, Christer Johansson. *Lund University, Division of Nuclear Physics, Lund, Sweden; Swedish Meteorological and Hydrological Institute (SMHI), Norrkoeping, Sweden; Stockholm University, Institute of Applied Environmental Research (ITM), Air Pollution Laboratory, Stockholm, Sweden; Stockholm Environment and Protection Agency, Air Quality and Noise Analysis, Stockholm, Sweden.*

P05-22. ULTRAFINE PARTICLES NEAR MAJOR HIGHWAYS IN LOS ANGELES.

Yifang Zhu, William C. Hinds, Constantinos Sioutas. *Environmental Health Sciences, University of California Los Angeles, Los Angeles, CA; Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P05-23. AMBIENT FINE PARTICULATE MATTER CONCENTRATIONS IN NEW YORK CITY TRAFFIC.

Asher M Ghertner, Dorothy Beals, Joshua Spiegel, Kathleen L Purvis, Robert C Harriss, Manjula Canagaratna, John T Jayne, Scott Herndon, Charles Kolb, Douglas R Worsnop. *Energy and Resources Group, University of California, Berkeley, Berkeley, CA; Joint Science Department, The Claremont Colleges, Claremont, CA; Environmental and Societal Impacts Group, National Center for Atmospheric Research, Boulder, CO; Aerodyne Research, Inc., Billerica, MA.*

P05-24. INVESTIGATIONS OF DIESEL SOOT WITH CLASSICAL AND NOVEL TECHNIQUES.

Artur Braun, Naresh Shah, Frank E Huggins, Gerald P Huffman, Sue Wirick, Chris Jacobsen, Henry Francis, Gerald E Thomas, Kerry Kelly, Adel Sarofim. *Consortium for Fossil Fuel Science, University of*

Kentucky, Lexington, KY; Physics Department, State University of New York, Stony Brook, NY; Kentucky Geological Survey, University of Kentucky, Lexington, KY; Center for Applied Energy Research, University of Kentucky, Lexington, KY; Dept. of Chemical and Fuels Engineering, University of Utah, Salt Lake City, UT.

P05-25. COMPARISON OF CHEMICAL COMPOSITION OF IN-USE DIESEL AND GASOLINE VEHICLE EMISSION SAMPLES.

Barbara Zielinska, Jake D. McDonald, John C. Sagebiel, Kevin Whitney, Douglas R. Lawson. Division of Atmospheric Sciences, Desert Research Institute, Reno, NV; Lovelace Respiratory Research Institute, Albuquerque, NM; Southwest Research Institute, San Antonio, TX; National Renewable Energy Laboratory, Golden, CO.

P05-26. MODELING OF THE NUMBER DISTRIBUTIONS OF URBAN AND REGIONAL AEROSOLS - EVOLUTION OF AEROSOL NUMBER DISTRIBUTION NEAR ROADWAYS.

Ke Max Zhang, Anthony S Wexler. Mechanical and Aeronautical Engineering, University of California, Davis, CA.

P05-27. SPATIAL AND TEMPORAL ASSESSMENT OF A MOBILE SOURCE AEROSOL INDICATOR DURING WINTER IN BOSTON, MA.

George A. Allen, Philip R.S. Johnson. NESCAUM, Northeast States for Coordinated Air Use Management, Boston, MA.

P05-28. MODELING VOLATILE NANOPARTICLES GENERATED BY MOTOR ENGINES.

Fangqun Yu. Atmospheric Sciences Research Center, State University of New York at Albany, Albany, NY.

P05-29. STATISTICAL ANALYSIS OF FUEL, EQUIPMENT, AND DRIVING SCHEDULE EFFECTS ON PM EMISSIONS FROM HEAVY VEHICLES.

Timothy C Coburn. Department of Management Science, Abilene Christian University, Abilene, TX.

P05-30. ASSESSING PARTICULATE MATTER EMISSIONS FROM LIGHT-DUTY, GASOLINE POWERED MOTOR VEHICLES.

Rich Baldauf, Joe Somers, Gene Tierney, Carl Fulper, Jim Warila, Peter Gabele, Brent Bailey, Steve Cadle, Doug Lawson. National Vehicle and Fuel Emissions Lab, U.S. Environmental Protection Agency, Ann Arbor, MI; National Exposure Research Lab, U.S. Environmental Protection Agency, Research Triangle Park, NC; Coordinating Research Council, Atlanta, GA; General Motors, Warren, MI; National Renewable Energy Lab, Golden, CO.

P05-31. THE RELATIVE CONTRIBUTIONS OF DIESEL AND GASOLINE EXHAUSTS TO PM-2.5 INVENTORIES.

Joseph H Somers, Richard W Baldauf, Chad R Bailey. Office of Transportation and Air Quality, U.S. Environmental Protection Agency, Ann Arbor, MI.

P05-32. PM EMISSIONS OF MODERN LIGHT DUTY VEHICLES: CURRENT STATUS AND FUTURE ISSUES.

Matti Maricq. Scientific Research Laboratory, Ford Motor Company, Dearborn, MI.

P05-33. CORRELATING PARTICULATE MATTER MOBILE SOURCE EMISSIONS TO AMBIENT AIR QUALITY.

Kevin N Black. Office of Environment and Planning, Federal Highway Administration, Washington, DC.

P05-34. PM CONCENTRATIONS AND SOURCES IN SWEDEN.

Hans C Hansson, Hans Areskoug, Christer Johansson. Air Pollution Laboratory, Institute of Applied Env. Research, Stockholm Univ., Stockholm, Sweden.

P05-35. SENSITIVITY OF VISIBILITY AND REGIONAL HAZE TO EMISSIONS REDUCTIONS.

Larry L. Gautney, Elizabeth M. Bailey. *Air, Land and Water Sciences, Tennessee Valley Authority, Muscle Shoals, AL.*

P05-36. GEOGRAPHIC INFORMATION SYSTEMS AND PM10 EXPOSURE MODELING

Allison L. Robinson, Nancy B. Sussman, H. Gregg Claycamp, Ravi K. Sharma. *Environmental & Occupational Health, University of Pittsburgh, Pittsburgh, PA.*

**Workshop 6: Dosimetry and Exposure Issues for Health Effects
Applications**

Chair: Beverly S. Cohen, NYU

Co-Chair: W. Michael Foster, Duke

Tuesday, April 1, 2003

10:00 AM - 11:30 AM

Oral Session

Location: Kings Garden North

OR06-01. DEMONSTRATION OF A TECHNIQUE TO ESTIMATE INDIVIDUAL, DAILY VALUES FOR THE AMBIENT AND NONAMBIENT COMPONENTS OF TOTAL PERSONAL EXPOSURE TO PARTICULATE MATTER.

William E Wilson, Stefanie Ebelt, Michael Brauer. *National Center for Environmental Assessment, U.S. Environmental Protection Agency, Research Triangle Park, NC; Environmental Science and Engineering Program, Harvard School of Public Health, Boston, MA; Department of Medicine, University of British Columbia, Vancouver, BC, Canada.*

OR06-02. FACTORS INFLUENCING AEROSOL DEPOSITION IN HUMANS AND RATS USING A MULTIPLE PATH PARTICLE DOSIMETRY MODEL (MPPD V1.0).

Renata De Winter-Sorkina, Flemming R. Cassee. *Center for Substances and Integrated Risk Assessment, RIVM (National Institute of Public Health and the Environment), Bilthoven, Netherlands; Center for Environment and Health Research, RIVM.*

OR06-03. RISK FACTORS ASSOCIATED WITH INCREASED FINE PARTICLE DEPOSITION IN HEALTHY CHILDREN.

William D Bennett, Kirby L Zeman. *Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC.*

OR06-04. DEVELOPMENT OF URINARY METABOLITE BIOMARKERS TO ASSESS POPULATION EXPOSURE TO PM2.5 FROM VARIOUS COMBUSTION SOURCES.

Joellen Lewtas, Steven Myers, Christopher Simpson, Russell Dills, David Kalman. *NERL, US EPA, Port Orchard, WA; Univ. of Louisville School of Medicine, Louisville, KY; Dept. of Environmental Health, Univ. of Washington, WA.*

Poster Session

Location: Grand Ballroom 2-4

P06-01. DEMONSTRATION OF A TECHNIQUE TO ESTIMATE INDIVIDUAL, DAILY VALUES FOR THE AMBIENT AND NONAMBIENT COMPONENTS OF TOTAL PERSONAL EXPOSURE TO PARTICULATE MATTER.

William E Wilson, Stefanie Ebelt, Michael Brauer. *National Center for Environmental Assessment, U.S. Environmental Protection Agency, Research Triangle Park, NC; Environmental Science and Engineering Program, Harvard School of Public Health, Boston, MA; Department of Medicine, University of British Columbia, Vancouver, BC, Canada.*

P06-02. SELECTING REALISTIC PM DOSES FOR IN-VITRO STUDIES.

Robert F. Phalen, Michael J. Oldham. *Department of Community and Environmental Medicine, University of California, Irvine, CA; Southern California Particle Center and Supersite, University of California, Los Angeles, CA.*

P06-03. ESTIMATED RELATIONSHIPS BETWEEN AEROSOL NUMBER, SURFACE-AREA AND MASS EXPOSURE METRICS USING A SIMPLIFIED NUMERICAL MODELING APPROACH.

Andrew D Maynard, Robert L Maynard. *MRSA, National Institute for Occupational Safety and Health, Cincinnati, OH; Department of Health, London, United Kingdom.*

P06-04. CAN AEROSOL SURFACE-AREA EXPOSURE BE ESTIMATED ADEQUATELY FROM MEASURED NUMBER AND MASS CONCENTRATION?

Andrew D Maynard. *NIOSH, CDC, Cincinnati, OH.*

P06-05. FACTORS INFLUENCING AEROSOL DEPOSITION IN HUMANS AND RATS USING A MULTIPLE PATH PARTICLE DOSIMETRY MODEL (MPPD V1.0).

Renata De Winter-Sorkina, Flemming R. Cassee. *Center for Substances and Integrated Risk Assessment, RIVM (National Institute of Public Health and the Environment), Bilthoven, Netherlands; Center for Environment and Health Research, RIVM.*

P06-06. MATHEMATICAL MODEL OF DISPERSION AND DEPOSITION OF PARTICLES IN PULMONARY AIRWAYS.

Seong Suk Park, Anthony S Wexler. *Civil and Environmental Engineering, University of California, Davis, Davis, CA.*

P06-07. CALCULATIONS OF EQUIVALENT HUMAN EXPOSURE CONCENTRATIONS FROM RAT INHALATION EXPOSURE STUDIES.

Bahman Asgharian, Fred J. Miller. *Division of Biomathematics and Physical Sciences, CIIT Centers for Health Research, Research Triangle Park, NC; Vice President for Research, CIIT Centers for Health Research, Research Triangle Park, NC.*

P06-08. TURBULENT THREE-PHASE FLOWS IN BUBBLE COLUMNS.

Xinyu Zhang, Goodarz Ahmadi. *Department of Mechanical and Aeronautical Engineering, Clarkson University, Potsdam, NY.*

P06-09. DISTRIBUTION PATTERNS OF INHALED ULTRAFINE SILVER PARTICLES IN THE RAT LUNG.

Shinji Takenaka, Erwin Karg, Wolfgang G Kreyling, Bernd Lentner, Holger Schulz, Axel Ziesenis, Helma Becke, Ulrich Heinzmann, Peter Schramel, Joachim Heyder. *Institute for Inhalation Biology, GSF National Research Center for Environment and Health, Neuherberg/Munich, Germany; Institute of Pathology, GSF National Research Center for Environment and Health, Neuherberg/Munich, Germany; Institute of Ecological Chemistry, GSF National Research Center for Environment and Health, Neuherberg/Munich, Germany.*

P06-10. INHALED ULTRAFINE CARBON PARTICLES CAN TRANSLOCATE TO THE CNS.

G. Oberdörster, Z. Sharp, V. Atudorei, A. Elder, R. Gelein, J. Finkelstein, W. Kreyling, C. Cox. *Environmental Medicine, University of Rochester, Rochester, NY; Earth and Planetary Sciences, University of New Mexico, Albuquerque, NM; IHB, GSF-National Research Center, Munich, Germany; NICHD, NIH, Bethesda, MD; Pediatrics, University of Rochester, Rochester, NY.*

P06-11. LONG-TERM CLEARANCE KINETICS OF INHALED ULTRAFINE INSOLUBLE IRIIDIUM PARTICLES IN THE RAT LUNG.

Manuela Semmler, Jürgen Seitz, Franz Erbe, Paula Mayer, Joachim Heyder, Günter Oberdörster, Wolfgang G. Kreyling. *Institute for Inhalation Biology, GSF-National Research Center for Environment and Health, D-85758 Neuherberg/Munich, Germany; Focus Network Aerosols and Health, GSF-National Research*

Center for Environment and Health, D-85758 Neuherberg/Munich, Germany; Medical Center, University of Rochester, Rochester, NY.

P06-12. FILTRATION EFFICIENCY OF A REPLICATED HUMAN NASAL AIRWAYS.

James T. Kelly, Bahman Asgharian, Julie S. Kimbell, Brian A. Wong. *Center for Computational Biology and Extrapolation Modeling, CIIT Centers for Health Research, Research Triangle Park, NC.*

P06-13. PERFORMANCE OF A NEW MOBILE WHOLE BODY MOUSE EXPOSURE SYSTEM.

Michael J. Oldham, Robert F. Phalen, Risa J. Robinson, Micheal T. Kleinman. *Department of Community and Environmental Medicine, University of California, Irvine, CA; Southern California Particle Center and Supersite, University of California, Los Angeles, CA; Department of Mechanical Engineering, Rochester Institute of Technology, Rochester, NY.*

P06-14. DETAILED CHARACTERIZATION OF AN ORNL CELL-AIR DEPOSITION INTERFACE DEVICE (CELLADIND) FOR ASSESSING PARTICLE TOXICITY.

Mengdawn Cheng, John M. E. Storey, Boyd Malone. *Environmental Sciences Division, Oak Ridge National Lab, Oak Ridge, TN.*

P06-15. REGIONAL DEPOSITION OF ULTRAFINE, FINE, AND COARSE PARTICLES IN THE HEALTHY AND OBSTRUCTED LUNG.

James S Brown, Kirby L Zeman, William D Bennett. *Center for Environmental Medicine, Asthma and Lung Biology, University of North Carolina, Chapel Hill, NC.*

P06-16. NASAL UPTAKE OF FINE PARTICLES: EFFECT OF AGE, RACE, AND GENDER.

William D Bennett, Kirby L Zeman. *Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC.*

P06-17. RISK FACTORS ASSOCIATED WITH INCREASED FINE PARTICLE DEPOSITION IN HEALTHY CHILDREN.

William D Bennett, Kirby L Zeman. *Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC.*

P06-18. HEALTH EFFECTS INDICATORS IN HUMAN LUNG IN RELATION TO PARTICLE CONCENTRATION AND METAL CONTENT.

Jane Gallagher, Steven Schlaegle, Alan Levine, Tasha Rogers, Francis Green, Mark Schenker, Norbert Menzel, Klaus Wittmaker, Kent Pinkerton. *HSD, US EPA, RTP, NC; RJ Lee Inc, Pittsburgh, PA; Dept of Pathology and Laboratory Medicine, U of Calgary, Calgary, AB, Canada; Epidemiology, U. of Ca at Davis, Davis, CA; NRCEH, GSF, Neuherberg, Germany; Epidemiology and Preventative Medicine, UC at Davis, Davis, CA.*

P06-19. DEVELOPMENT OF URINARY METABOLITE BIOMARKERS TO ASSESS POPULATION EXPOSURE TO PM_{2.5} FROM VARIOUS COMBUSTION SOURCES.

Joellen Lewtas, Steven Myers, Christopher Simpson, Russell Dills, David Kalman. *NERL, US EPA, Port Orchard, WA; Univ. of Louisville School of Medicine, Louisville, KY; Dept. of Environmental Health, Univ. of Washington, WA.*

Workshop 7: Semi-Continuous Methods for Measuring PM

Chair: Susanne Hering, Aerosol Dynamics

Co-Chairs: Rodney Weber, GA Tech and Shelly Eberly, EPA

Tuesday, April 1, 2003

1:00 PM - 2:30 PM

Oral Session

Location: LeBateau

The oral presentations are yet to be determined.

Poster Session

Location: Grand Ballroom 2-4

P07-01. EVALUATION OF PM₁₀ EMISSIONS FROM AGRICULTURAL OPERATIONS IN SAN JOAQUIN VALLEY, CALIFORNIA.

Krystyna Trzepla-Nabaglo, Omar F Carvacho, Lowell L Ashbaugh, Robert G Flocchini. *Crocker Nuclear Laboratory, University of California, Davis, CA.*

P07-02. A NEW INSTRUMENT FOR MONITORING NUMBER AND MASS OF AMBIENT PARTICLES: LABORATORY AND FIELD EVALUATIONS.

Thomas Kuhn, Steve Tearle, Paul H. Kaye, Edwin Hirst, Ranjeet S. Sokhi, Srinivas T.G. Srimath. *Environmental Sciences, University of Hertfordshire, Hatfield, United Kingdom; Research and Development, Casella CEL Ltd., Bedford, United Kingdom; Science and Technology Research Centre, University of Hertfordshire, Hatfield, United Kingdom.*

P07-03. INFERRING THE SOURCES OF FINE AND ULTRAFINE PARTICULATE MATTER AT DOWNWIND RECEPTOR SITES IN THE LOS ANGELES BASIN USING MULTIPLE CONTINUOUS MEASUREMENTS.

Philip M Fine, Si Shen, Constantinos Sioutas. *Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P07-04. THE RELATIONSHIP BETWEEN BOTH REAL-TIME AND TIME-INTEGRATED COARSE AND FINE PARTICULATE MATTER AT AN URBAN SITE IN LOS ANGELES.

Michael D Geller, Philip M Fine, Constantinos Sioutas. *Department of Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P07-05. DIURNAL PATTERNS IN PM_{2.5} MASS AND COMPOSITION AT A BACKGROUND, COMPLEX TERRAIN SITE.

Roger L Tanner, Kenneth J. Olszyna, Solomon T Bairai, Myra L. Valente. *Air, Land, and Water Sciences, Tennessee Valley Authority, Muscle Shoals, AL.*

P07-06. CONTINUOUS ULTRAFINE PM MEASUREMENTS IN SOURCE AND RECEPTOR SITES OF THE LOS ANGELES BASIN AND RELATION TO PM_{2.5} MASS, CHEMICAL COMPOSITION AND SOURCES.

Bhabesh Chakrabarti, Manisha Singh, Philip M Fine, Constantinos Sioutas. *Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P07-07. PARTICULATE MATTER MASS CONCENTRATION MEASUREMENTS AT THE SAINT LOUIS - MIDWEST SUPERSITE.

Elizabeth M Simon, George Allen, Scott A Duthie, Petros Koutrakis, Jay R Turner. *Sonoma Technology, Inc., Petaluma, CA; Northeast States for Coordinated Air Use Management, Boston, MS; Environmental Engineering Program, Washington University, Saint Louis, MO; School of Public Health, Harvard University, Boston, MA.*

P07-08. QUALITY CONTROL OF CONTINUOUSLY SIZE-FRACTIONATED FINE AND ULTRAFINE PARTICLE DATA.

Rong Chun Yu, Hee-Wen Teh, Constantinos Sioutas. *Southern California Particle Center and Supersite, UCLA School of Public Health, Los Angeles, CA; Department of Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P07-09. LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS) FOR ELEMENTAL ANALYSIS OF AMBIENT PARTICLES: DATA FROM THE PITTSBURGH SUPERSITE.

Gregg A Lithgow, Allen L Robinson, Steven G Buckley. *Mechanical Engineering, University of Maryland, College Park, MD; Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

P07-10. NEW INSIGHTS INTO THE DYNAMICS OF SOURCES OF FINE PARTICULATE MATTER USING SEMI-CONTINUOUS CHEMICAL SPECIATION SAMPLERS.

James J Schauer, Min-Suk Bae, Yu-Chen Chang, Sarala Gazula, Petros Koutrakis, John M Ondov, J. Patrick Pancras, Jay R Turner, Warren H White, Megan Yu. *Environmental Chemistry and Technology Program, University of Wisconsin-Madison, Madison, WI; Chemistry Department, University of Maryland, College Park, MD; School of Public Health, Harvard University, Boston, MA; Environmental Engineering Program, Washington University, Saint Louis, MO; Cocker Nuclear Laboratory, University of California at Davis, Davis, CA.*

P07-11. MEASUREMENTS OF PARTICLE INORGANIC AND ORGANIC CHEMICAL COMPOSITION WITH THE PARTICLE-INTO-LIQUID SAMPLER (PILS).

Rodney J Weber, Doug Orsini, Amy Sullivan, Yilin Ma, Kari Meier. *Earth and Atmospheric Sciences, Georgia Tech, Atlanta, GA.*

P07-12. A REMOTE SENSOR FOR VEHICLE EXHAUST PARTICULATE MATTER.

Hans Moosmuller, Claudio Mazzoleni, Robert E. Keislar, Peter W. Barber, Hampden D. Kuhns, John G. Watson. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV.*

P07-13. THE COMPARISON BETWEEN THERMAL OPTICAL TRANSMITTANCE ELEMENTA CARBON AND AETHALOMETER BLACK CARBON MEASURED AT MULTIPLE MONITORING SITES.

Eugene Kim, Cheol-Heon Jeong, Doh-Won Lee, Philip K Hopke. *Chemical Engineering, Clarkson University, Potsdam, NY; Civil and Environmental Engineering, Clarkson University, Potsdam, NY.*

P07-14. MEASUREMENT OF REAL-TIME PM_{2.5} MASS AND FINE CHEMICAL COMPOSITIONS AT NORTHWEST PHILADELPHIA.

Doh-Won Lee, Cheol-Heon Jeong, Eugene Kim, Philip K Hopke. *Civil and Environmental Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY.*

P07-15. CHARACTERIZATION OF CHEMICAL COMPOSITIONS IN FINE PARTICULATE MATTER DURING THE ROCHESTER PARTICULATE MATTER STUDY.

Cheol-Heon Jeong, Doh-Won Lee, Eugene Kim, Philip K. Hopke, Robert Gelein. *Civil and Environmental Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY; EPA PM center, University of Rochester, Rochester, NY.*

P07-16. COMPARISON OF FILTER-BASED AND SEMI-CONTINUOUS CARBON AEROSOL MEASUREMENTS AT RESEARCH TRIANGLE PARK, NORTH CAROLINA.

Joann Rice. *OAQPS, EMAD, U.S. Environmental Protection Agency, Research Triangle Park, NC.*

P07-17. SULFATE DETECTION IN INDIVIDUAL FINE AND ULTRAFINE AMBIENT PARTICLES AT THE BALTIMORE SUPERSITE.

Murray V Johnston, Derek A Lake, Michael P Tolocka, Anthony S Wexler. *Chemistry and Biochemistry, University of Delaware, Newark, DE; Mechanical and Aeronautical Engineering, Civil and Environmental Engineering, Land, Air and Water Resources, University of California, Davis, Davis, CA.*

P07-18. ULTRAFINE PARTICLE EVENTS ASSOCIATED WITH NITRATE CHEMISTRY OBSERVED BY SINGLE PARTICLE MASS SPECTROMETRY.

Michael P Tolocka, Murray V Johnston, Derek A Lake, Anthony S Wexler. *Chemistry and Biochemistry, University of Delaware, Newark, DE; Mechanical and Aeronautical Engineering, Civil and Environmental Engineering, Land, Air and Water Resources, University of California, Davis, Davis, CA.*

P07-19. USE OF CONTINUOUS SO₂ AND SULFATE MEASUREMENTS TO ESTIMATE SO₂ OXIDATION RATES IN POWER PLANT PLUMES.

Eric S Edgerton, Callie J Waid, Benjamin E Hartsell, D A Hansen, John J Jansen. *HQ, Atmospheric Research & Analysis, Inc., Cary, NC; Data Management, Atmospheric Research & Analysis, Inc., Plano, TX; EPRI, Palo Alto, CA; Southern Company, Birmingham, AL.*

P07-20. CONTINUOUS MEASUREMENTS OF PM_{2.5} SULFATE, NITRATE AND AMMONIUM IN SEARCH.

Benjamin E. Hartsell, Eric S. Edgerton, Chad E. Haker, Callie J. Waid, D A. Hansen, John J. Jansen. *HQ, Atmospheric Research & Analysis, Inc., Cary, NC; Operations Department, Atmospheric Research & Analysis, Inc., Plano, TX; EPRI, Palo Alto, CA; Southern Company, Birmingham, AL.*

P07-21. SEMI-CONTINUOUS PM_{2.5} SULFATE AND NITRATE MEASUREMENTS IN NEW YORK CITY.

Oliver V Rattigan, Dirk Felton, James J Schwab, Kenneth L Demerjian. *Division of Air Resources, New York State Department of Environmental Conservation, Albany, NY; Atmospheric Science Research Center, University of Albany, State University of New York, Albany, NY.*

P07-22. INTECOMPARISON OF SEMI-CONTINUOUS PARTICULATE SULFATE AND NITRATE MEASUREMENT TECHNOLOGIES AT A NEW YORK STATE URBAN AND RURAL LOCATION.

Olga Hogrefe, Drewnick Frank, James J. Schwab, Kevin Rhoads, Sarah Peters, Kenneth L. Demerjian. *Atmospheric Sciences Research Center, University at Albany, State University of New York, Albany, NY; Chemistry Department, Siena College, Loudonville, NY.*

P07-23. OPTICAL AND CHEMICAL LIGHT SCATTERING DETERMINATION IN THE SOUTHEAST: EXAMPLES FROM THE SEARCH NETWORK.

Ivar H Tombach, Benjamin E Hartsell. *Consultant, Camarillo, CA; Atmospheric Research & Analysis, Inc., Plano, TX.*

P07-24. A NEW INTEGRATING NEPHELOMETER FOR VISIBILITY STUDIES.

Hans Moosmuller, W. Patrick Arnott, Ravi Varma. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV.*

P07-25. ANALYSIS OF AEROSOL LIGHT ABSORPTION MEASUREMENT CAPABILITIES: THE RENO AEROSOL OPTICS EXPERIMENT.

William P Arnott, Hans Moosmueller, Patrick J Sheridan, John A Ogren. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV; Climate Monitoring and Diagnostics Laboratory, National Oceanic and Atmospheric Administration, Boulder, CO.*

P07-26. MEASUREMENT OF ATMOSPHERIC VISIBILITY WITH A HIGH-QUALITY CAVITY.

Hans Moosmuller, W. Patrick Arnott, Ravi Varma. *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV.*

P07-27. CORRELATION OF VISIBILITY AND PM_{2.5} MASS CONCENTRATION AND RELATED PRECURSORS IN THE ADIRONDACK REGION OF UPSTATE NEW YORK DURING THE PMTACS-NY SUMMER INTENSIVE OF 2002.

Utpal K. Roychowdhury, Richard A. Lamica, Henry D. Felton, Phil Galvin, James J. Schwab, Kenneth L. Demerjian. *Atmospheric Sciences Research Center, University at Albany - SUNY, Albany, NY; Department of Environmental Conservation, Division of Air Resources, Albany, NY.*

P07-28. WATER CONTENT OF AMBIENT AEROSOL DURING PITTSBURGH AIR QUALITY STUDY.

Andrey Khlystov, Charles Stanier, Spyros N. Pandis, Dimitris Vayenas. *Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA; Environmental and Natural Resources Management, University of Ioannina, Agrinio, Greece.*

Workshop 8: Toxicology: Metals, Mixtures, and New Models

Chairs: Gunter Oberdorster, U. Rochester and Robert Devlin, EPA
Co-Chairs: Kevin Dreher, EPA and Kevin Driscoll, Procter and Gamble
Tuesday, April 1, 2003
1:00 PM - 2:30 PM

Oral Session

Location: Kings Garden South

This session will include a brief oral presentation of selected posters.

Poster Session

Location: Grand Ballroom 2-4

P08-01. ON-ROAD EXPOSURE TO HIGHWAY AEROSOLS: 1. PARTICLE CHEMISTRY AND RAT EXPOSURE SYSTEM.

Philip K. Hopke, Cheol-Heon Jeong, Wei Liu, Weixiang Zhao, Liming Zhuo, David Kittleson, Win Watts, Robert Gelein, Gunter Oberdorster. *Chemical Engineering, Clarkson University, Potsdam, NY; Mechanical Engineering, University of Minnesota, Minneapolis, MN; Environmental Medicine, University of Rochester, Rochester, NY.*

P08-02. ON-ROAD EXPOSURE TO HIGHWAY AEROSOLS: 2. ON-ROAD AEROSOL AND GAS MEASUREMENTS.

David B Kittelson, Winthrop F Watts, Jason P Johnson, Gunter Oberdorster, Robert Gelein, Phillip K Hopke. *Mechanical Engineering, University of Minnesota, Minneapolis, MN; Environmental Medicine, University of Rochester, Rochester, NY; Chemical Engineering, Clarkson University, Potsdam, NY.*

P08-03. ON-ROAD EXPOSURE TO HIGHWAY AEROSOLS. 3. EXPOSURES OF AGED AND COMPROMISED RATS.

Alison Elder, Robert Gelein, Jacob Finkelstein, Carl Johnston, Richard Phipps, Mark Frampton, Mark Utell, David Kittelson, Winn Watts, Philip Hopke, Günter Oberdörster. *Env. Med., Univ. of Rochester, Rochester, NY; Peds., Univ. of Rochester, Rochester, NY; Med., Univ. of Rochester, Rochester, NY; Mech. Eng., Univ. of Minnesota, Minneapolis, MN; Chem. Eng., Clarkson Univ., Potsdam, NY.*

P08-04. MOLECULAR ADSORPTION AT PARTICLE SURFACES: A PM TOXICITY MEDIATION MECHANISM.

Michaela Kendall, Morton Lippmann. *Environmental Medicine, New York University, Tuxedo, NY.*

P08-05. ASSESSING THE OXIDATIVE CAPACITY OF ENVIRONMENTAL AND MODEL PARTICULATE MATTER (PM) IN SYNTHETIC RESPIRATORY TRACT LINING FLUID (RTLFL).

Ian S Mudway, Sean Duggan, Tingming Shi, Thomas Kuhlbusch, Paul JA Borm, Frank FJ Kelly. *Lung Biology, Kings College London, London, United Kingdom; Institut für Umweltmedizinische Forschung, at the Heinrich-Heine-Universität, Dusseldorf, Germany; IUTA, Duisburg, Germany.*

P08-06. RESPONSE OF HUMAN ALVEOLAR MACROPHAGES TO ULTRAFINE, FINE AND COARSE URBAN AIR POLLUTION PARTICLES.

Susanne Becker, Joleen M Soukup, Constantinos Sioutas, Ming-Chih Chang, Flemming R Cassee. *National Health and Environmental Effects Research Laboratory, US Environmental Protection Agency, RTP, NC; Department of Civil Engineering, University of Southern California, Los Angeles, CA; Center for Environment and Health Research, National Institute of Public Health and Environment, Bilthoven, Netherlands; GE Energy and Environmental Research Corp., Irvine, CA.*

P08-07. EXPRESSION OF C-REACTIVE PROTEIN AND HEAT SHOCK PROTEIN 70 IN THE LUNG EPITHELIAL CELL LINE A549, IN RESPONSE TO PM10 TREATMENT.

Lindsay C Ramage, Ken Donaldson, Keith Guy. *School of Life Sciences, Napier University, Edinburgh, United Kingdom; Medical School - ELEGI Colt Laboratory, University of Edinburgh, Edinburgh, United Kingdom; School of Life Sciences, Napier University, Edinburgh, United Kingdom.*

P08-08. DEFINING THE RELATIONSHIP BETWEEN PARTICLE SIZE, NUMBER, METAL COMPOSITION AND OXIDANT ACTIVITY IN AMBIENT PARTICULATE MATTER.

Tingming Shi, Roel P.F. Schins, Thomas Kuhlbusch, Begerow Jutta, Mudway S Ian, Kelly Frank, Borm J.A. Paul. *Particle Research, Institut für Umweltmedizinische Forschung(IUF), Duesseldorf, NRW, Germany; IUTA eV, Duisburg, Germany; Hygiene Institute, Gelsenkirchen, Germany; School of Health and Life Sciences, Kings College, London, United Kingdom.*

P08-09. EXPOSURE OF SPONTANEOUS HYPERTENSIVE RATS TO AMBIENT PARTICULATE MATTER AFFECTS CARDIOVASCULAR PERFORMANCE IN A LANGENDORFF MODEL.

Meiring James, Bagate Karim, Gerlofs-Nijland Miriam, Cassee R. Flemming, Borm J.A. Paul. *Particle Research, Institut für Umweltmedizinische Forschung(IUF), Duesseldorf, NRW, Germany; Laboratory of Health Effects Research, National Institute of Public Health, Bilthoven, Netherlands.*

P08-10. VASCULAR EFFECT OF PARTICLE INSTILLATION IN SPONTANEOUS HYPERTENSIVE RATS.

Bagate Karim, Meiring James, Gerlofs-Nijland Miriam, Vleeming Wim, Vincent Renaud, Cassee Flemming, Borm Paul. *Particle Research, Institut für Umweltmedizinische Forschung(IUF), Duesseldorf, NRW, Germany; Laboratory of Health Effects Research, National Institute of Public Health, Bilthoven, Netherlands; Environmental and Occupational Toxicology, Health Canada, Ottawa, Canada.*

P08-11. TIME COURSE STUDY OF PULMONARY AND CARDIOVASCULAR EFFECTS OF AMBIENT PARTICULATE MATTER IN SPONTANEOUS HYPERTENSIVE RATS.

Miriam E Gerlofs-Nijland, John F Boere, Daan LAC Leseman, Jan Bos, Ingeborg M Kooter, Paul Borm, Leendert Van Bree, Flemming R Cassee. *Center of Environment and Health Research, National Institute for Public Health and Environment, Bilthoven, Netherlands; Office for Environmental Assessment, National Institute for Public Health and Environment, Bilthoven, Netherlands; Particle Research Core, Institut für Umweltmedizinische Forschung (IUF) at the University of Düsseldorf, Düsseldorf, Germany.*

P08-12. ADJUVANT ACTIVITY OF VARIOUS DIESEL EXHAUST AND AMBIENT PARTICLES IN TWO ALLERGIC MODELS.

Peter A Steerenberg, Carien ET Withagen, Jan AMA Dormans, Wendy J Van Dalen, Flemming R Cassee, Henk Van Loveren. *Laboratory of Toxicology, National Institute of Public Health and the Environment, Bilthoven, Netherlands; Center for Environment and Health Research, National Institute of Public Health and the Environment, Bilthoven, Netherlands.*

P08-13. ADJUVANT ACTIVITY DIFFERENCES IN PARTICULATE AIR POLLUTION (COURSE VS. FINE) AT DIFFERENT LOCATIONS THROUGHOUT EUROPE.

Peter A Steerenberg, Wendy J Van Dalen, Carien ET Withagen, Jan AMA Dormans, Flemming R Cassee, Henk van Loveren. *Laboratory for Toxicology, National Institute for Public Health and Environment, Bilthoven, Netherlands; Center for Environment and Health Research, National Institute for Public Health and Environment, Bilthoven, Netherlands.*

P08-14. CHEMICAL AND BIOLOGICAL CHARACTERISATION OF AMBIENT AIR COARSE, FINE, AND ULTRAFINE PARTICLES FOR HUMAN HEALTH RISK ASSESSMENT IN EUROPE (PAMCHAR).

Raimo O. Salonen, Arto S. Pennanen, Paul Borm, Bert Brunekreef, Flemming Cassee, Risto Hillamo. *National Public Health Institute, Kuopio, Finland; Institut für Umweltmedizinische Forschung, Dusseldorf,*

Germany; Utrecht University, Utrecht, Netherlands; National Institute of Public Health and the Environment, Bilthoven, Netherlands; Finnish Meteorological Institute, Helsinki, Finland.

P08-15. FATE AND TOXIC EFFECTS OF INHALED ULTRAFINE CADMIUM OXIDE PARTICLES IN THE RAT LUNG.

Shinji Takenaka, Erwin Karg, Wolfgang G Kreyling, Bernd Lentner, Holger Schulz, Axel Ziesenis, Peter Schramel, Joachim Heyder. *Institute for Inhalation Biology, GSF National Research Center for Environment and Health, Neuherberg/Munich, Germany; Institute of Ecological Chemistry, GSF National Research Center for Environment and Health, Neuherberg/Munich, Germany.*

P08-16. RESPIRATORY ALLERGY AND INFLAMMATION DUE TO AMBIENT PARTICLES (RAIAP) - A EUROPEAN-WIDE ASSESSMENT - INFLAMMATION SCREENING.

Ragna B. Hetland, Magne Refsnes, Marit Låg, Rune Becher, Johan Øvrevik, Erik Dybing, Per E. Schwarze. *Division of Environmental Medicine, Norwegian Institute of Public Health, Oslo, Norway.*

P08-17. BIOAVAILABLE CONSTITUENTS OF AIR POLLUTION PARTICLES MEDIATE ALTERATIONS IN CARDIAC METABOLISM AND FUNCTION *EX VIVO*.

Kevin Dreher, Richard Jaskot, Scott Gabel, Elizabeth Murphy. *Pulmonary Toxicology Branch, US EPA, RTP, NC; Environmental Biology Program, NIEHS, RTP, NC.*

P08-18. DIESEL SOOT BINDS AND CONCENTRATES A PROINFLAMMATORY CYTOKINE THAT CAUSES NEUTROPHIL MIGRATION.

JeanClare Seagrave, Cindy Knall, Jacob D. McDonald, Joe L. Mauderly. *Toxicology, Lovelace Respiratory Research Institute, Albuquerque, NM.*

P08-19. INFLAMMATORY EFFECTS INDUCED BY PM₁₀ SAMPLES OF DIFFERING COMPOSITION.

Janet H Lightbody, Ken Donaldson, Lang Tran, Vicki Stone. *School of Life Sciences, Napier University, Edinburgh, United Kingdom; ELEGI/Colt Laboratories, Edinburgh University, Edinburgh, United Kingdom; Institute of Occupational Medicine, Edinburgh, United Kingdom.*

P08-20. SMOG CHAMBER EXPERIMENTS OF URBAN MIXTURES ENHANCE INFLAMMATORY RESPONSES IN LUNG CELLS.

Mohammad Jaoui, Kenneth G. Sexton, Harvey E. Jeffries, Ilona Jaspers, Richard M. Kamens. *Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; Center for Environmental Medicine & Lung Biology, University of North Carolina, Chapel Hill, NC.*

P08-21. FINE DUST PARTICULATE MATTER INDUCES CYTOKINE RELEASE THROUGH TRPV1 ACTIVATION IN LUNG CELLS.

John M Veranth, Chaz R Langelier, Christopher A Reilly, Martha M Veranth, Garold S Yost. *Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.*

P08-22. CHEMICAL AND *IN-VITRO* TOXICOLOGICAL CHARACTERIZATION OF WINTER AND SPRING PM_{2.5} IN HELSINKI.

Raimo O. Salonen, Arja I. Hälinen, Arto S. Pennanen, Maija-Riitta Hirvonen, Markus Sillanpää, Risto Hillamo, Tarja Koskentalo, Päivi Aarnio. *National Public Health Institute, Kuopio, Finland; Finnish Meteorological Institute, Helsinki, Finland; Helsinki Metropolitan Area Council, Helsinki, Finland.*

P08-23. CHEMOTAXIN RELEASE BY TYPE II EPITHELIAL CELLS FOLLOWING TREATMENT WITH FINE AND ULTRAFINE PARTICLES.

Peter Barlow, Anna Clouter, Ken Donaldson, Vicki Stone. *Biomedicine Research Group, Napier University, Edinburgh, United Kingdom; Edinburgh Lung and Environment Group Initiative (ELEGI), University of Edinburgh, Edinburgh, United Kingdom.*

P08-24. ADVERSE HEALTH EFFECTS DUE TO INHALED CARBON NANOPARTICLES?

Klaus Wittmaack. *Institute of Radiation Protection, GSF-National Research Center for Environment and Health, Neuherberg, Germany.*

P08-25. CYTOKINE RESPONSES ELICITED BY PM_{2.5} SEAS SAMPLES COLLECTED AT THE BALTIMORE SUPERSITE DURING A 2002 INTENSIVE STUDY.

Robert J Mitkus, Jan Powell, Miriam Akkerman, John Ondov, Katherine Squibb. *Epidemiology and Preventive Medicine, University of Maryland School of Medicine, Baltimore, MD; Chemistry and Biochemistry, University of Maryland, College Park, MD.*

P08-26. COMPARISON OF THE BIOLOGICAL ACTIVITY OF NIST INTERIM REFERENCE MATERIAL FOR PM_{2.5} WITH NIST STANDARD REFERENCE MATERIAL® 1648 FOR URBAN PARTICULATE MATTER.

Robert J Mitkus, Jan Powell, Rolf Zeisler, Miriam Akkerman, Katherine Squibb. *Epidemiology and Preventive Medicine, University of Maryland School of Medicine, Baltimore, MD; Analytical Chemistry Division, National Institute of Standards and Technology, Gaithersburg, MD.*

P08-27. CHARACTERIZATION OF ORGANIC AEROSOL (WOOD SMOKE AND DIESEL EXHAUST PARTICULATE) USING SUBCRITICAL WATER FRACTIONATION AND IN VITRO TOXICITY TESTS.

Alena Kubátová, Tamara S. Steckler, John R. Gallagher, Steven B. Hawthorne, Matthew J. Picklo. *Energy & Environmental Research Center, University of North Dakota, Grand Forks, ND; Department of Pharmacology, Physiology & Therapeutic, School of Medicine and Health Sciences, Grand Forks, ND.*

P08-28. IN VITRO TOXICITY OF AMBIENT PM₁₀ AND PM_{2.5} COLLECTED FOR HEPMEAP PROJECT.

Roberta Pozzi, Cecilia Guastadisegni. *Environmental Hygiene Laboratory, Istituto Superiore di Sanità, Rome, Italy.*

P08-29. GENE EXPRESSION PROFILES IN HUMAN AND RAT VASCULAR ENDOTHELIAL CELLS EXPOSED TO RESIDUAL OIL FLY ASH (ROFA) OR VANADIUM (V).

Srikanth S Nadadur, Darrell W Winsett, Daniel L Costa. *Pulmonary Toxicology Branch, NHEERL, ORD, US EPA, Research Triangle Park, NC.*

P08-30. INFLUENCE OF EXTRACTION TECHNIQUE AND COLLECTION SUBSTRATE ON THE OXIDATIVE ACTIVITY OF ENVIRONMENTAL PARTICULATE MATTER (PM).

Ian S Mudway, Sean T Duggan, Paul HB Fokkens, Flemming R Cassee, Frank J Kelly. *Department of Health and Life Sciences, Kings College London, Waterloo, London, United Kingdom; Centre for Health and Environment Research, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands.*

P08-31. METAL COMPONENTS OF AIR POLLUTION PARTICLES AFFECT THE FUNCTION OF CULTURED CARDIAC MYOCYTES.

Donald W Graff, Wayne E Cascio, Barbara J Muller-Borer, Jill S Bowman, Robert B Devlin. *Human Studies Division, NHEERL, USEPA, RTP, NC; Division of Cardiology, UNC, Chapel Hill, NC.*

P08-32. DNA DAMAGE ASSAY AS A QUANTITATIVE MEASURE OF FREE RADICAL FORMATION BY SIZE-FRACTIONATED COAL COMBUSTION-DERIVED ASH PARTICLES.

John R. Gallagher, Nicholas V.C. Ralston, Steven A. Benson. *Energy and Environmental Research Center, University of North Dakota, Grand Forks, ND.*

P08-33. EXPOSURE TO PARTICULATE MATTER IN AIR POLLUTION LEADS TO INFLAMMATORY RESPONSES IN THE MOUSE BRAIN.

Arezo Campbell, Angelica Becaria, Michael Oldham, Dianne Meacher, Stephen C. Bondy, Michael Kleinman. *Community & Environmental Medicine, University of California, Irvine, Irvine, CA; Community & Environmental Medicine, University of California, Irvine, Irvine, CA; Community & Environmental Medicine, University of California, Irvine, Irvine, CA; Community & Environmental Medicine, University*

of California, Irvine, Irvine, CA; Community & Environmental Medicine, University of California, Irvine, Irvine, CA; Community & Environmental Medicine, University of California, Irvine, Irvine, CA.

P08-34. IMMEDIATE EFFECTS OF PARTICULATE AIR POLLUTANTS ON CARDIAC AND RESPIRATORY FUNCTION IN YOUNG, OLD, AND HYPERTENSIVE RATS.

Christine Nadziejko, Kaijie Fang, Elizabeth Nadziejko, Sandy P Narciso, Mianhua Zhong, Polina Maciejczyk, Lung Chi Chen, Terry Gordon. *Nelson Institute of Environmental Medicine, NYU School of Medicine, Tuxedo, NY.*

P08-35. EFFECTS OF CONCENTRATED AMBIENT PM ON THE FREQUENCY OF ARRHYTHMIAS IN OLD RATS.

Christine Nadziejko, Kaijie Fang, Sandy P Narciso, Mianhua Zhong, Lung Chi Chen, Terry Gordon. *Nelson Institute of Environmental Medicine, NYU School of Medicine, Tuxedo, NY.*

P08-36. FREE RADICALS ON COAL COMBUSTION EMISSION PARTICLES AND THE LUNG CANCER RISK.

Linwei Tian, Donald Lucas, S Katharine Hammond, Junko Yano, Vittal K Yachandra, Catherine P Koshland. *Environmental Health Sciences, University of California, Berkeley, CA; Environmental Energy Technologies Division, LBNL, Berkeley, CA; Physical Biosciences Division, LBNL, Berkeley, CA.*

P08-37. TOXICITY TESTING OF ATMOSPHERIC PARTICULATE MATTER EXTRACTS: SHORT-TERM AQUATIC TOXICITY METHODS VERSUS BACTERIAL LUMINESCENCE AND SUB-MITOCHONDRIAL PARTICLE METHODS.

Rebecca J Sheesley, James J Schauer, Jocelyn D Hemming, Steven W Geis, Miel A Barman. *Environmental Chemistry and Technology, University of Wisconsin-Madison, Madison, WI; State Lab of Hygiene, University of Wisconsin-Madison, Madison, WI.*

P08-38. AIRWAY EPITHELIAL CELLS RELEASE MIP-3 alpha/CCL20 IN RESPONSE TO CYTOKINES AND AMBIENT PARTICULATE MATTER.

Joan Reibman, Yanshen Hsu, Lung Chi Chen, Bertram Bleck, Terry Gordon. *Environmental Medicine, NYU School of Medicine, New York City, NY.*

Workshop 9: Regional, Seasonal and Temporal Factors in Health Effects

Chair: Fred Lipfert, Environmental Consultant

Co-Chair: Suresh Moolgavkar, Fred Hutchinson Cancer Research Center

Tuesday, April 1, 2003

1:00 PM - 2:30 PM

Oral Session

Location: Kings Garden North

OR09-01. HOW CAN SOURCE APPORTIONMENT AND RECEPTOR MODELLING DATA BE USED IN EPIDEMIOLOGY?

Thomas Lumley, Hao Liu. *Biostatistics, University of Washington, Seattle, WA.*

OR09-02. ISSUES IN THE USE OF SOURCE-ORIENTED PARTICULATE MATTER INDICES FOR AIR POLLUTION EPIDEMIOLOGY.

Kazuhiko Ito, Xiaonan Xue, George Thurston. *Nelson Institute of Environmental Medicine, New York University School of Medicine, Tuxedo, NY.*

OR09-03. SEASONAL AND SPATIAL VARIABILITY OF THE SIZE-RESOLVED CHEMICAL COMPOSITION OF PM_{2.5} IN THE LOS ANGELES BASIN.

Philip M Fine, Satya B Sardar, Peter A Jaques, Constantinos Sioutas. *Civil and Environmental Engineering, University of Southern California, Los Angeles, CA; School of Public Health, University of California, Los Angeles, Los Angeles, CA.*

OR09-04. QUALITATIVE DIFFERENCES IN PARTICULATE AIR POLLUTION AT DIFFERENT LOCATIONS THROUGHOUT EUROPE.

Henk JT Bloemen, John F Boere, Paul HB Fokens, Daan LAC Leseman, Gergio Catani, Bjørn V Johansen, Tadeusz Halatek, Flemming R Cassee. *Center of Environment and Health Research and Laboratory of Field Measurements, National Institute for Public Health and Environment, Bilthoven, Netherlands; Division of Environmental Medicine, Norwegian Public Health Institute, Oslo, Norway; Department of Toxicology and Carcinogenesis, Nofer Institute of Occupational Medicine, Lodz, Poland; Laboratorio di Ultrastrutture, Istituto Superiore di Sanita, Rome, Italy.*

OR09-05. RESPIRATORY ALLERGY AND INFLAMMATION DUE TO AMBIENT PARTICLES - A EUROPEAN-WIDE ASSESSMENT (RAIAP).

Erik Dybing, Flemming R Cassee, Konrad Rydzynski, Marco Martuzzi, Martinus Løvik, Per E Schwarze, Peter A Steerenberg. *Norwegian Institute of Public Health, Oslo, Norway; National Institute of Public Health and the Environment, Bilthoven, Netherlands; Nofer Institute of Occupational Medicine, Lodz, Poland; WHO European Centre for Environment and Health, Rome, Italy.*

OR09-06. RESPIRATORY ALLERGY AND INFLAMMATION DUE TO AMBIENT PARTICLES (RAIAP) - A EUROPEAN-WIDE ASSESSMENT. ALLERGY SCREENING.

Torunn Løvdal, Else-Carin Groeng, Erik Dybing, Martinus Løvik. *Division of Environmental Medicine, Norwegian Institute of Public Health, Oslo, Norway.*

OR09-07. A SYNTHESIS OF LONG-TERM MORTALITY STUDIES, 1990-2002.

F. W. Lipfert. *Self Employed, Environmental Consultant, Northport, NY.*

OR09-08. THE EPRI-WASHINGTON UNIVERSITY VETERANS COHORT STUDY: MODEL SENSITIVITY STUDIES AND RESULTS FOR ADDITIONAL AIR POLLUTANTS.

F. W. Lipfert, R. E. Wyzga, J. D. Baty, J. P. Miller. *Environmental, EPRI, Palo Alto, CA; School of Medicine Biostatistics, Washington U., St. Louis, MO; School of Medicine Biostatistics, Washington U., St. Louis, MO.*

Poster Session

Location: Grand Ballroom 2-4

P09-01. HOW CAN SOURCE APPORTIONMENT AND RECEPTOR MODELLING DATA BE USED IN EPIDEMIOLOGY?

Thomas Lumley, Hao Liu. *Biostatistics, University of Washington, Seattle, WA.*

P09-02. ISSUES IN THE USE OF SOURCE-ORIENTED PARTICULATE MATTER INDICES FOR AIR POLLUTION EPIDEMIOLOGY.

Kazuhiko Ito, Xiaonan Xue, George Thurston. *Nelson Institute of Environmental Medicine, New York University School of Medicine, Tuxedo, NY.*

P09-03. SEASONAL AND SPATIAL VARIABILITY OF THE SIZE-RESOLVED CHEMICAL COMPOSITION OF PM_{2.5} IN THE LOS ANGELES BASIN.

Philip M Fine, Satya B Sardar, Peter A Jaques, Constantinos Sioutas. *Civil and Environmental Engineering, University of Southern California, Los Angeles, CA; School of Public Health, University of California, Los Angeles, Los Angeles, CA.*

P09-04. QUALITATIVE DIFFERENCES IN PARTICULATE AIR POLLUTION AT DIFFERENT LOCATIONS THROUGHOUT EUROPE.

Henk JT Bloemen, John F Boere, Paul HB Fokens, Daan LAC Leseman, Gergio Catani, Bjørn V Johansen, Tadeusz Halatek, Flemming R Cassee. *Center of Environment and Health Research and Laboratory of Field Measurements, National Institute for Public Health and Environment, Bilthoven, Netherlands; Division of Environmental Medicine, Norwegian Public Health Institute, Oslo, Norway; Department of Toxicology and Carcinogenesis, Nofer Institute of Occupational Medicine, Lodz, Poland; Laboratorio di Ultrastrutture, Istituto Superiore di Sanita, Rome, Italy.*

P09-05. RESPIRATORY ALLERGY AND INFLAMMATION DUE TO AMBIENT PARTICLES - A EUROPEAN-WIDE ASSESSMENT (RAIAP).

Erik Dybing, Flemming R Cassee, Konrad Rydzynski, Marco Martuzzi, Martinus Lövik, Per E Schwarze, Peter A Steerenberg. *Norwegian Institute of Public Health, Oslo, Norway; National Institute of Public Health and the Environment, Bilthoven, Netherlands; Nofer Institute of Occupational Medicine, Lodz, Poland; WHO European Centre for Environment and Health, Rome, Italy.*

P09-06. RESPIRATORY ALLERGY AND INFLAMMATION DUE TO AMBIENT PARTICLES (RAIAP) - A EUROPEAN-WIDE ASSESSMENT. ALLERGY SCREENING.

Torunn Løvdal, Else-Carin Groeng, Erik Dybing, Martinus Løvik. *Division of Environmental Medicine, Norwegian Institute of Public Health, Oslo, Norway.*

P09-07. INFLUENZA AND AIR QUALITY: A TIME-SERIES ANALYSIS OF WEEKLY MORTALITY IN LONDON RELATIVE TO THE MAJOR AIR POLLUTION EPISODES OF THE 1950s.

F W. Lipfert. *Self Employed, Environmental Consultant, Northport, NY.*

**Workshop 10: Measurement of Particle Size
(Ultrafine, Fine, and Coarse)**

Chair: Richard Flagan, Caltech

Co-Chair: Fatima Andrade, U. Sao Paulo

Tuesday, April 1, 2003

3:00 PM - 4:30 PM

Oral Session

Location: LeBateau

OR10-01. RECENT ADVANCES IN OUR UNDERSTANDING OF PHYSICAL AND CHEMICAL PROPERTIES OF PARTICULATE MATTER.

Peter H. McMurry. *Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN.*

OR10-02. SPATIAL AND TEMPORAL VARIATIONS IN PM_{2.5} MORPHOLOGY.

Rafael N McDonald, Pratim Biswas. *Environmental Engineering Science, Washington University in St. Louis, St. Louis, MO.*

OR10-03. PARTICLE FORMATION AND GROWTH IN SO₂- AND VOC-RICH PLUMES NEAR HOUSTON, TEXAS.

Charles A Brock, Michael Trainer. *Aeronomy Laboratory, NOAA, Boulder, CO; CIRES, University of Colorado, Boulder, CO.*

OR10-04. CHEMICAL CHARACTERIZATION OF FINE AND ULTRAFINE AEROSOLS DURING THE ROCHESTER, NY SUMMER INTENSIVE, 2002.

Ann M Dillner, Xia Su, James J Schauer, Mei Zheng, Glen R Cass. *Chemical and Materials Engineering, Arizona State University, Tempe, AZ; Environmental Chemistry and Technology Program, University of Wisconsin, Madison, WI; Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA.*

OR10-05. USING MASS SPECTROMETRY TO MEASURE PARTICLE COMPOSITION AS A FUNCTION OF SIZE.

Ann M. Middlebrook. *NOAA, Boulder, CO.*

Poster Session

Location: Grand Ballroom 2-4

P10-01. INTENSIVE ANALYSIS OF AMBIENT AEROSOLS IN THE GREATER CINCINNATI AIRSHED.

Rafael N McDonald, Pratim Biswas, Shaohua Hu, Dainius Martuzevicius, Sergey A Grinshpun, Tiina Reponen, Grace LeMasters. *Environmental Engineering Science, Washington University in St. Louis, St. Louis, MO; Department of Environmental Health, University of Cincinnati, Cincinnati, OH.*

P10-02. REGIONAL ULTRAFINE PARTICLE NUCLEATION OBSERVED IN ST. LOUIS, MO.

Qian Shi, Hiromu Sakurai, Peter H McMurry. *Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN; Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN; Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN.*

P10-03. INTERCOMPARISON OF APS, ELPI AND LPI FOR COARSE, FINE AND BIMODAL PARTICLE MASS SIZE-DISTRIBUTIONS.

Joakim H Pagels, Anders Gudmundsson, Eva Gustavsson, Lars Asking, Mats Bohgard. *Division of Aerosol Technology (EAT), Lund University, Lund, Sweden; Pharmaceutical & Analytical R&D, Astra Zeneca R&D, Lund, Sweden.*

P10-04. REAL-TIME PM MEASUREMENTS WITH OUTDOOR AIR ELPI.

Henna Tuomenoja, Timo Mäkelä, Risto Hillamo, Marko Palonen. *Product Management, Dekati Ltd., Tampere, Finland; Aerosol Research, Finnish Meteorological Institute, Helsinki, Finland.*

P10-05. MEASUREMENTS OF AEROSOL MASS AND SIZE DISTRIBUTION IN A RESIDENTIAL AREA IMPACTED BY WOOD SMOKE.

Lars Gidhagen, Christer Johansson, Erik Swietlicki, Hans-Christen Hansson. *Research Division, Swedish Meteorological and Hydrological Institute, Norrköping, Sweden; Air Pollution Laboratory, Institute of Applied Environmental Research, Stockholm, Sweden; Division of Nuclear Physics, Lund University, Lund, Sweden.*

P10-06. EFFECTS OF GASEOUS POLLUTANTS AND METEOROLOGICAL PARAMETERS ON NUCLEATION AND GROWTH OF ULTRAFINE PARTICLES IN URBAN AMBIENT AIR.

Cheol-Heon Jeong, Philip K. Hopke, David Chalupa, Henry D. Felton. *Civil and Environmental Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY; Environmental Medicine, University of Rochester Medical Center, Rochester, NY; Division of Air Resources, New York State Department of Environmental Conservation, Albany, NY.*

P10-07. NUMBER CONCENTRATION AND SIZE DISTRIBUTION OF URBAN AEROSOLS NEAR DOWNTOWN DETROIT.

Li-Hao Young, Gerald J Keeler. *Department of Environmental Health Sciences, University of Michigan, Ann Arbor, MI; Department of Atmospheric, Oceanic, and Space Sciences, University of Michigan, Ann Arbor, MI.*

P10-08. DIURNAL AND SEASONAL TRENDS IN OUTDOOR PARTICLE SIZE DISTRIBUTIONS MEASURED AT URBAN AND RURAL LOCATIONS DURING THE PITTSBURGH AIR QUALITY STUDY.

Charles Stanier, Andrey Khlystov, Spyros N Pandis. *Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

P10-09. AEROSOL SIZE DISTRIBUTIONS: A COMPARISON OF MEASUREMENTS FROM URBAN AND RURAL SITES.

G. Garland Lala, Olga Hogrefe, Kenneth L. Demerjian. *Atmospheric Sciences Research Center, The University at Albany, State University of New York, Albany, NY.*

P10-10. CONTINUOUS MEASUREMENT OF THE ATMOSPHERIC AEROSOL PARTICLE SIZE DISTRIBUTION AT THE ST. LOUIS-MIDWEST SUPERSITE.

Hironu Sakurai, Qian Shi, Xiaoliang Wang, Keung S. Woo, Peter H. McMurry. *Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN.*

P10-11. AEROSOL NUMBER-SIZE DISTRIBUTIONS AT AN URBAN LOCATION: LONG TERM DATA FROM SEATTLE, WA. PARTICULATE MATERIAL CENTER, CENTRAL MONITORING SITE.

David Covert, Robert Elleman, Astrid Schreuder, Thomas Lumley, Timothy Larson, Eugene Kim. *Atmospheric Science, University of Washington, Seattle, WA; Environmental Health, University of Washington, Seattle, WA; Biostatistics, University of Washington, Seattle, WA; Civil Engineering, University of Washington, Seattle, WA; Chemical Engineering, Clarkson University, Potsdam, NY.*

P10-12. STATISTICAL SUMMARY AND OBSERVATIONS OF SEMICONTINUOUS PARTICLE SIZE DISTRIBUTIONS MEASURED AT THE BALTIMORE SUPERSITE.

Narayanan PV Nair, John M. Ondov, Seung S. Park. *Department of Chemistry and BioChemistry, University of Maryland, College Park, MD; Department of Chemistry and BioChemistry, University of Maryland, College Park, MD.*

P10-13. SIZE RESOLVED MASS BALANCE OF AEROSOL PARTICLES OVER THE METROPOLITAN REGION OF SAO PAULO, BRAZIL.

Rita Y Ynoue, Maria de Fatima Andrade. *Department of Atmospheric Sciences, Institute of Astronomy, Geophysics and Atmospheric Sciences - University of Sao Paulo, Sao Paulo, SP, Brazil.*

P10-14. PARTICLE FORMATION AND GROWTH IN SO₂- AND VOC-RICH PLUMES NEAR HOUSTON, TEXAS.

Charles A Brock, Michael Trainer. *Aeronomy Laboratory, NOAA, Boulder, CO; CIRES, University of Colorado, Boulder, CO.*

P10-15. SIZE-RESOLVED AEROSOL CHEMICAL COMPOSITION MEASUREMENTS DURING THE NEW ENGLAND AIR QUALITY STUDY WITH AN AEROSOL MASS SPECTROMETER ABOARD THE RONALD H. BROWN.

Ann M Middlebrook, Manjula R Canagaratna, Douglas R Worsnop. *Aeronomy Laboratory, NOAA, Boulder, CO; Aerodyne Research Inc., Billerica, MA.*

P10-16. CHEMICAL CHARACTERIZATION OF FINE AND ULTRAFINE AEROSOLS DURING THE ROCHESTER, NY SUMMER INTENSIVE, 2002.

Ann M Dillner, Xia Su, James J Schauer, Mei Zheng, Glen R Cass. *Chemical and Materials Engineering, Arizona State University, Tempe, AZ; Environmental Chemistry and Technology Program, University of Wisconsin, Madison, WI; Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA.*

P10-17. CHARACTERIZATION OF CONCENTRATED ULTRAFINE AEROSOLS.

Ann M Dillner, Xia Su, James J Schauer, Robert Gelein, Mei Zheng, Glen R Cass. *Chemical and Materials Engineering, Arizona State University, Tempe, AZ; Environmental Chemistry and Technology Program, University of Wisconsin, Madison, WI; Department of Environmental Medicine, University of Rochester Medical Center, Rochester, NY; Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA.*

P10-18. SEASONAL EFFECTS ON THE SIZE DISTRIBUTION OF PAH, EC AND OC IN CLAREMONT, LOCATED DOWNWIND OF CENTRAL LOS ANGELES.

Antonio H. Miguel, Arantazu Eiguren-Fernandez, Peter A. Jaques, Bill Grant, Paul Mayo, Constantinos Sioutas. *Southern CA Particle Center and Supersite, UCLA, Los Angeles, CA; SCPCS, USC, Los Angeles, CA.*

P10-19. SIZE AND CHEMICAL CHARACTERIZATION OF URBAN ULTRAFINE AND FINE PARTICULATE MATTER IN THE EASTERN UNITED STATES.

Michele F. Sipin, Yongxuan Su, Kimberly A. Prather, Robert Gelein, Gunter Oberdorster, Mark J. Utell. *Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA; Department of Environmental Medicine, University of Rochester, Rochester, NY.*

P10-20. MASS AND CHEMICALLY RESOLVED SIZE COMPOSITIONS OF FINE PARTICULATE MATTER AT THE PITTSBURGH SUPERSITE.

Juan C Cabada, Spyros N Pandis, Sarah Rees, Satoshi Takahama, Andrey Khlystov, Allen L Robinson, Cliff I Davidson. *Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

P10-21. ASPIRATION AND TRANSFER EFFICIENCIES OF THE TSP AND DICHOTOMOUS PM SAMPLING INLETS.

Lee C. Kenny, David Mark, G. Beaumont, A. Gudmundsson, W. Koch. *Health and Safety Laboratory, Sheffield; Institute of Occupational Medicine, UK; Lund University of Technology, Sweden; Fraunhofer Institute for Aerosol Research, Germany.*

P10-22. THE DEVELOPMENT AND DESIGNATION TESTING OF A NEW EPA APPROVED FINE PARTICLE INLET A STUDY OF THE U.S. EPA DESIGNATION PROCESS.

L. C Kenny, T. Merrifield, D. Mark, R. Gussman, A. Thorpe. *H.S.E. Laboratory, Sheffield; BGI Inc., Waltham, MA.*

P10-23. CORRECTION OF DROPLET DISTORTION EFFECTS IN AERODYNAMIC PARTICLE SIZING INSTRUMENTS.

Paul A. Baron, Anthony B. Martinez, Erica N. Jones. *National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Cincinnati, OH.*

P10-24. SPATIAL AND TEMPORAL VARIATIONS IN PM_{2.5} MORPHOLOGY.

Rafael N McDonald, Pratim Biswas. *Environmental Engineering Science, Washington University in St. Louis, St. Louis, MO.*

P10-25. THE NATURE OF SIZE-RESOLVED INDIVIDUAL ASIAN DUST STORM PARTICLES COLLECTED AT GROUND-BASED SITE ON WEST COAST OF JAPAN.

Mikio Kasahara, Chang-Jin Ma, Susumu Tohno, Shinjiro Hayakawa. *Graduate School of Energy Science, Kyoto University, Uji, Kyoto, Japan; Graduate School of Engineering, Hiroshima University, Higashi-Hiroshima, Hiroshima, Japan.*

P10-26. CALIBRATION OF THE NANO-MOUDI II CASCADE IMPACTOR.

Virgil A. Marple, Bernard A. Olson. *Mechanical Engineering, University of Minnesota, Minneapolis, MN; Mechanical Engineering, University of Minnesota, Minneapolis, MN.*

Workshop 11: Air Quality Modeling

Chair: Christian Seigneur, Atmospheric and Environmental Research

Co-Chair: Robin Dennis, EPA

Tuesday, April 1, 2003

3:00 PM - 4:30 PM

Oral Session

Location: Kings Garden South

OR11-02. POLICY IMPLICATIONS OF THE CURRENT STATE OF PM CHEMICAL TRANSPORT MODELS: THE USE OF CHEMICAL TRANSPORT MODELS TO ESTIMATE PARTICLE CONCENTRATIONS AND EXPOSURE.

Christian Seigneur, Michael Moran. *Air Quality Division, Atmospheric & Environmental Research, Inc., San Ramon, CA; Meteorological Service of Canada, Environment Canada, Downsview, ON, Canada.*

OR11-03. INORGANIC AEROSOL THERMODYNAMIC MODEL WITH N(III).

Yu-Mei Hsu, Yee-Lin Wu. *Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan; Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan.*

OR11-04. PERFORMANCE EVALUATION OF MULTI-PHASE INORGANIC AEROSOL THERMODYNAMIC MODULE: UHAERO.

Kee-Youn Yoo, Jiwen He, Near R. Amundson. *Department of Mathematics, University of Houston, Houston, TX; Department of Chemical Engineering, University of Houston, Houston, TX.*

OR11-05. USE OF HIGH-TEMPORAL-RESOLUTION PM DATA FOR MODEL PERFORMANCE EVALUATION.

Sharon G Douglas, Jay L Haney, Geoffrey L Glass, John J Jansen. *Air Quality Modeling Group, ICF Consulting/SAL, San Rafael, CA; Southern Company, Birmingham, AL.*

OR11-06. SIMULATION OF THE ATMOSPHERIC AEROSOL SIZE/COMPOSITION DISTRIBUTION IN A THREE-DIMENSIONAL CHEMICAL TRANSPORT MODEL.

Timothy M Gaydos, Kathleen M Fahey, Bonyoung Koo, Spyros N Pandis. *Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

OR11-07. DEVELOPMENT AND APPLICATION OF THE PMCAM_x MODEL TO TREAT FINE PARTICULATE AND VISIBILITY ISSUES.

Ralph E. Morris, Greg Yarwood, Gerard E. Mansell. *Air Sciences Group, ENVIRON International Corporation, Novato, CA.*

OR11-08. AIR QUALITY MODELING OF AN EXTREME PM₁₀ EPISODE AT SANTIAGO, CHILE.

Hector I. Jorquera. *Chemical and Bioprocess Engineering, Catholic University of Chile, Santiago, Santiago, Chile.*

OR11-09. AN EVALUATION OF THE MODELS-3 CMAQ AEROSOL MODULE.

Brian Eder, Shaocai Yu, Robin Dennis. *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; On Assignment from Air Resources Laboratory, National Atmospheric and Oceanic Administration, Research Triangle Park, NC.*

OR11-10. RELATIVE CONTRIBUTIONS OF PRIMARY AND SECONDARY (BIOGENIC AND ANTHROPOGENIC) ORGANIC AEROSOLS AT NASHVILLE: COMPARISONS OF OBSERVATIONS AND MODELING RESULTS.

Shaocai Yu, Robin Dennis, Brian Eder, Charles Lewis, Francis Binkowski, Kenneth Schere, George Klouda. *National Exposure Research Laboratory, U.S. EPA, Research Triangle Park, NC; On Assignment from Air Resources Laboratory, National Atmospheric and Oceanic Administration, Research Triangle Park, NC; Atmospheric Chemistry Group, National Institute of Standards and Technology, Gaithersburg, MD.*

OR11-11. MODELING PHOTOCHEMISTRY AND AEROSOLS IN POLLUTANT PLUMES WITH THE CMAQ PLUME-IN-GRID APPROACH.

James M Godowitch. *NOAA Air Resources Laboratory, Atmospheric Sciences Modeling Division, Research Triangle Park, NC.*

OR11-12. MODELING PARTICULATE MATTER WITH THE COMMUNITY MULTISCALE AIR QUALITY (CMAQ) MODELING SYSTEM DURING THE PACIFIC NORTHWEST 2001 (PNW2001) FIELD CAMPAIGN.

Robert A Elleman, David S Covert, Clifford F Mass, Brian K Lamb, Jack Chen, Leonard A Barrie, Richard Barchet. *Department of Atmospheric Sciences, University of Washington, Seattle, WA; Department of Civil and Environmental Engineering, Washington State University, Pullman, WA; Atmospheric Sciences Technical Group, Pacific Northwest National Laboratory, Richland, WA.*

OR11-13. SIMULATION OF PARTICULATE MATTER IN SOUTHERN TAIWAN BY MODELS-3/CMAQ.

Der-Min Tsai, Yee-Lin Wu. *Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan.*

OR11-14. A PARTICULATE MATTER AIR QUALITY FORECAST MODELING SYSTEM FOR THE NORTHEAST U.S. – COMPARISONS WITH SUMMER 2001 EPA SUPERSITE FIELD INTENSIVE DATA.

Chenxia Cai, Christian Hogrefe, George Kallos, Petros Katsafados, Julius S. Chang, Kenneth L. Demerjian. *Atmospheric Sciences Research Center, Univeristy at Albany - SUNY, Albany, NY; University of Athens, Athens, Greece.*

Poster Session

Location: Grand Ballroom 2-4

P11-01. INORGANIC AEROSOL THERMODYNAMIC MODEL WITH N(III).

Yu-Mei Hsu, Yee-Lin Wu. *Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan; Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan.*

P11-02. PERFORMANCE EVALUATION OF MULTI-PHASE INORGANIC AEROSOL THERMODYNAMIC MODULE: UHAERO.

Kee-Youn Yoo, Jiwen He, Near R. Amundson. *Department of Mathematics, University of Houston, Houston, TX; Department of Chemical Engineering, University of Houston, Houston, TX.*

P11-03. USE OF HIGH-TEMPORAL-RESOLUTION PM DATA FOR MODEL PERFORMANCE EVALUATION.

Sharon G Douglas, Jay L Haney, Geoffrey L Glass, John J Jansen. *Air Quality Modeling Group, ICF Consulting/SAI, San Rafael, CA; Southern Company, Birmingham, AL.*

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Hector I. Jorquera. *Chemical and Bioprocess Engineering, Catholic University of Chile, Santiago, Santiago, Chile.*

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Brian Eder, Shaocai Yu, Robin Dennis. *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; On Assignment from Air Resources Laboratory, National Atmospheric and Oceanic Administration, Research Triangle Park, NC.*

P11-08. RELATIVE CONTRIBUTIONS OF PRIMARY AND SECONDARY (BIOGENIC AND ANTHROPOGENIC) ORGANIC AEROSOLS AT NASHVILLE: COMPARISONS OF OBSERVATIONS AND MODELING RESULTS.

Shaocai Yu, Robin Dennis, Brian Eder, Charles Lewis, Francis Binkowski, Kenneth Schere, George Klouda. *National Exposure Research Laboratory, U.S. EPA, Research Triangle Park, NC; On Assignment from Air Resources Laboratory, National Atmospheric and Oceanic Administration, Research Triangle Park, NC; Atmospheric Chemistry Group, National Institute of Standards and Technology, Gaithersburg, MD.*

P11-09. MODELING PHOTOCHEMISTRY AND AEROSOLS IN POLLUTANT PLUMES WITH THE CMAQ PLUME-IN-GRID APPROACH.

James M Godowitch. *NOAA Air Resources Laboratory, Atmospheric Sciences Modeling Division, Research Triangle Park, NC.*

P11-10. MODELING PARTICULATE MATTER WITH THE COMMUNITY MULTISCALE AIR QUALITY (CMAQ) MODELING SYSTEM DURING THE PACIFIC NORTHWEST 2001 (PNW2001) FIELD CAMPAIGN.

Robert A Elleman, David S Covert, Clifford F Mass, Brian K Lamb, Jack Chen, Leonard A Barrie, Richard Barchet. *Department of Atmospheric Sciences, University of Washington, Seattle, WA; Department of Civil and Environmental Engineering, Washington State University, Pullman, WA; Atmospheric Sciences Technical Group, Pacific Northwest National Laboratory, Richland, WA.*

P11-11. SIMULATION OF PARTICULATE MATTER IN SOUTHERN TAIWAN BY MODELS-3/CMAQ.

Der-Min Tsai, Yee-Lin Wu. *Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan.*

P11-12. A PARTICULATE MATTER AIR QUALITY FORECAST MODELING SYSTEM FOR THE NORTHEAST U.S. – COMPARISONS WITH SUMMER 2001 EPA SUPERSITE FIELD INTENSIVE DATA.

Chenxia Cai, Christian Hogrefe, George Kallos, Petros Katsafados, Julius S. Chang, Kenneth L. Demerjian. *Atmospheric Sciences Research Center, University at Albany - SUNY, Albany, NY; University of Athens, Athens, Greece.*

P11-13. ESTIMATED SCAVENGING COEFFICIENTS OF SOLUBLE AEROSOL FROM OBSERVATIONS IN THE EASTERN UNITED STATES.

Constantin Andronache. *Boston College, Gasson Hall, Chestnut Hill, MA.*

P11-14. EVALUATION OF NITROGEN DIOXIDE PHOTOLYSIS RATES IN SAO PAULO (BRAZIL).

Regina M Miranda, Maria F Andrade, Artemio P Fattori. *Atmospheric Sciences, University of Sao Paulo, Sao Paulo, Sao Paulo, Brazil.*

P11-15. GAS-PHASE NITRIC ACID AND SULFURIC ACID FORMATION: RESULTS FROM PMTACS-NY SUMMER 2001 CAMPAIGN.

Xinrong Ren, Hartwig Harder, Monica Martinez, Robert Leshner, Angelique Oligier, James Simpas, William H. Brune, Yi He, Xianliang Zhou, James Schwab. *Department of Meteorology, Pennsylvania State University, University Park, PA; Wadsworth Center and State University of New York, Albany, NY; Atmospheric Sciences Research Center, State University of New York, Albany, NY.*

P11-16. ATMOSPHERIC BOUNDARY LAYER CHARACTERIZATION AND THE AEROSOL EXTINCTION COEFFICIENT DURING THE BALTIMORE PM SUPERSITE - JULY 2002.

Mariana Adam, Markus Pahlow, Marc Parlange, John Ondov. *Geography and Environmental Engineering, Johns Hopkins University, Baltimore, MD; Chemistry and Biochemistry, University of Maryland, College Park, MD.*

P11-17. COMPUTATIONAL METHODS FOR MULTI-PHASE MULTI-REACTION EQUILIBRIUM PROBLEM - MODELING URBAN AND REGIONAL AEROSOLS.

Jiwen He, KeeYoun Yoo, Neal R Amundson. *Department of Mathematics, University of Houston, Houston, TX; Chemical Engineering Department, University of Houston, Houston, TX.*

P11-18. JET OF STRETCHING DURING THE PARTIAL COALESCENCE.

Alexander V Kolpakov, Sergey K Aslanov, Lidiya V Maliarova. *The Department of Physics, The Odessa National University, Odessa, Ukraine.*

P11-19. PRIMARY AND SECONDARY ORGANIC AEROSOLS OVER THE UNITED STATES: ESTIMATES ON THE BASIS OF OBSERVATIONS AND MODELED PRIMARY OC/EC RATIOS.

Shaocai Yu, Brian Eder, Robin Dennis. *National Exposure Research Laboratory, U.S. EPA, Research Triangle Park, NC; On Assignment from Air Resources Laboratory, National Atmospheric and Oceanic Administration, Research Triangle Park, NC.*

P11-20. CHARACTERIZATION OF PM AND METEOROLOGY TO SUPPORT SELECTION OF MODELING EPISODES.

Sharon G Douglas, Belle Hudischewskyj, Geoffrey L Glass, Johanna B Mangahas, John J Jansen. *Air Quality Modeling Group, ICF Consulting/SAI, San Rafael, CA; Southern Company, Birmingham, AL.*

P11-21. APPLICATION OF PMCAMX TO THE SOUTH COAST AIR BASIN AND THE EASTERN UNITED STATES.

Bonyoung Koo, Kathleen M Fahey, Timothy M Gaydos, Spyros N Pandis. *Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

Workshop 12: Integrating Epidemiology, Toxicology, and Human Clinical Studies

Chair: Mark Utell, U. Rochester

Co-Chair: Jane Koenig, U. Wash.

Tuesday, April 1, 2003

3:00 PM - 4:30 PM

Oral Session

Location: Kings Garden North

The oral presentations are yet to be determined.

Poster Session

Location: Grand Ballroom 2-4

P12-01. THE ASSOCIATION BETWEEN AIR POLLUTION AND CARDIOVASCULAR MORTALITY IN GREATER PHOENIX, 1995 TO 1997.

Therese F Mar, Timothy V Larson, William E Wilson, Jane Q Koenig. *Environmental Health, University of Washington, Seattle, WA; Civil and Environmental Engineering, University of Washington, Seattle, WA; U.S. Environmental Protection Agency, Research Triangle Park, NC.*

P12-02. AN ANALYSIS OF THE ASSOCIATION BETWEEN AIR POLLUTION AND PULSE OXIMETRY, HEART RATE, AND BLOOD PRESSURE IN ELDERLY SUBJECTS IN SEATTLE.

Therese F Mar, Karen Jansen, Bryan Goldman, Carol A Trenga, Jeffrey Sullivan, Joel Kaufman, Hossein Siahpuh, L-Jane S Liu, Jane Q Koenig, Lucas Neas. *Environmental Health, University of Washington, Seattle, WA; Environmental Epidemiology, US Environmental Protection Agency, Research Triangle Park, NC.*

P12-03. THE USE OF EXHALED NITRIC OXIDE AS A NON-INVASIVE MEASURE OF INFLAMMATION IN OLDER SUBJECTS WITH CARDIORESPIRATORY DISEASE.

Karen Jansen, Therese F Mar, Jeff Sullivan, Joel Kaufman, Carol A Trenga, Timothy V Larson, L-JS Liu, Jane Q Koenig. *Department of Environmental Health, University, Seattle, WA.*

P12-04. FINE PARTICULATE (PM_{2.5}) AIR POLLUTION EXPOSURE AND PULMONARY FUNCTION IN AN ADULT POPULATION.

Carol A. Trenga, Bryan Goldman, Jonathan S. Schildcrout, Jeffrey H. Sullivan, Karen Jansen, Lucas M. Neas, Joel D. Kaufman, Lianne Sheppard, L-J Sally Liu, Jane Q Koenig. *EPA NW Research Center for Particulate Air Pollution and Health, University of Washington, Seattle, WA; US EPA, Research Triangle Park, NC.*

P12-05. IS PM MORE TOXIC THAN THE SUM OF ITS PARTS? DISCORDANCE BETWEEN "EFFECT FUNCTIONS" FOR PM MASS VS. RISK-ASSESSMENT TOXICITY FACTORS.

Peter A. Valberg, Chris M. Long. *Risk Assessment, Gradient Corporation, Cambridge, MA.*

P12-06. HEPMEAP - AMBIENT PM₁₀ AND PM_{2.5} AND THE ROLE OF MOTOR ENGINE EMISSIONS – THE FIRST EUROPEAN HYBRID APPROACH LINKING AIR QUALITY, TOXICOLOGICAL, AND EPIDEMIOLOGICAL INFORMATION.

Leendert Van Bree, Thomas Sandstrom, Bert Brunekreef, Frank Kelly, William MacNee, Luigi Paoletti, Anthony Frew, Erika Von Mutius, Stephan Weiland, Flemming Cassee, Henk Bloemen. *RIVM, Office for Environmental Assessment, Bilthoven, Utrecht, Netherlands; HEPMEAP, Consortium, Umea (co-ordinating) Utrecht, Bilthoven, London, Edinburgh, Southampton, Rome, Munchen, Munster, Sweden.*

P12-07. AIRNET – THEMATIC NETWORK ON AIR POLLUTION AND HEALTH IN EUROPE.

Leendert Van Bree, Bert Brunekreef, Erik Dybing, Klea Karsouyanni, Michal Krzyzanowski, Nicole Janssen, Marjan Tewis, Eef Van Otterloo. *Office for Environmental Assessment, RIVM, Bilthoven, Netherlands; Institute for Risk Assessment Sciences (IRAS), University of Utrecht, Utrecht, Netherlands; Division of Environmental Medicine, Norwegian Institute of Public Health, Oslo, Norway; Department of Hygiene and Epidemiology, University of Athens Medical School, Athens, Greece; Bonn Office, WHO European Center for Environment & Health, Bonn, Germany.*

P12-08. ON HEALTH RISKS OF AMBIENT PM IN THE NETHERLANDS.

Editors: Eltjo Buringh, Antoon Opperhuizen, Authors team: Aben, J., Ameling, C.B., Beck, J., Boere, A.J.F., Breugel, P.B. van, Brink, H.M. ten, Brink, R.M.M. van den, Buijsman, E., Brunekreef, B., Buringh, E., Cassee, F.R., Dekkers, A.L.M., Dolmans, J., Eerens, H.C., Fischer, P.H., Harmelen, A.K. van, Keuken, M.P., Kooter, I.M., Loon, M. van, Loon, W. van, Loveren, H. van, Marra, M., Matthijsen, J., Noordijk, H., Opperhuizen, A., Schaap, M., Schlesinger, R.B., Slanina, J., Smeets, P., Smeets, W.L.M., Spoelstra, H., Steerenberg, P.A., Visschedijk, A.J.H., Visser, H., Vries, W.J. de, Weijers, E., Winter, R. de. *National Institute of Public Health and the Environment, Bilthoven, Netherlands; Netherlands Aerosol Programme, Coordinated by NOVEM, Utrecht, Netherlands.*

Workshop 13: Receptor Modeling and Source Apportionment

Chair: Jamie Schauer, U. Wis.

Co-Chair: Gary Norris, EPA

Tuesday, April 1, 2003

5:00 PM - 6:30 PM

Oral Session
Location: LeBateau

OR13-01. NEW OPPORTUNITIES FOR TRACE ELEMENT ANALYSIS TO SUPPORT RECEPTOR MODELING.

Gerald J Keeler. *Environmental Health Sciences & Atmospheric Oceanic and Space Sciences, University of Michigan, Ann Arbor, MI.*

OR13-02. NEW OPPORTUNITIES FOR ORGANIC TRACER ANALYSES OF ATMOSPHERIC PARTICULATES, APPLICATION TO SOURCES, RECEPTORS, TRANSPORT AND SECONDARY PRODUCTS.

Bernd R Simoneit. *College of Ocean and Atmospheric Science, Oregon State University, Corvallis, OR.*

OR13-03. ADDRESSING SOME THREATS TO VALIDITY IN MULTIVARIATE RECEPTOR MODELING.

William F. Christensen. *Department of Statistics, Brigham Young University, Provo, UT.*

OR13-04. HOW CAN SOURCE APPORTIONMENT AND RECEPTOR MODELLING DATA BE USED IN EPIDEMIOLOGY?

Thomas Lumley, Hao Liu. *Biostatistics, University of Washington, Seattle, WA.*

Poster Session
Location: Grand Ballroom 2-4

P13-01. REVIEW OF SOURCE APPORTIONMENT TECHNIQUES FOR AIRBORNE PARTICULATE MATTER.

Michael J Kleeman. *Civil and Environmental Engineering, University of California, Davis, Davis, CA.*

P13-02. A SOURCE APPORTIONMENT OF FINE PARTICULATE MATTER IN LOWER MANHATTAN FOLLOWING THE WTC DISASTER.

George D. Thurston, Polina Maciejczyk, Ramona Lall, Jing-Shiang Hwang, Lung Chi Chen. *Nelson Institute of Environmental Medicine, New York University School of Medicine, Tuxedo, NY; Institute of Statistical Science, Academia Sinic, Taipei, Taiwan.*

P13-03. PRINCIPAL COMPONENT ANALYSIS OF TRACE ELEMENTS IN PM_{2.5} IN PITTSBURGH.

Natalie J Anderson, Cliff I Davidson, Spyros Pandis, Allen Robinson, Andrey Khlystov. *Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA; Civil and Environmental Engineering, Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA; Chemical Engineering, Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA; Mechanical Engineering, Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA.*

P13-04. DETERMINATION OF THE SOURCES CONTRIBUTING TO PM_{2.5} IN TORONTO USING POSITIVE MATRIX FACTORIZATION.

Patrick K.H. Lee, Jeffrey R. Brook, Scott A. Mabury. *Meteorological Service of Canada, Environment Canada, Toronto, ON, Canada; Department of Chemistry, University of Toronto, Toronto, ON, Canada.*

P13-05. SOURCE ALLOCATION OF CARBON IN PM_{2.5} USING C-14 AND TRACER INFORMATION.

Eric S Edgerton, Mei Zheng, Callie J Waid, John J Jansen, Benjamin E Hartsell. *HQ, Atmospheric Research & Analysis, Inc., Cary, NC; Data Management, Atmospheric Research & Analysis, Inc., Plano, TX; Southern Company, Birmingham, AL; Department of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA.*

P13-06. SEPARATING DIESEL AND SPARK-IGNITION VEHICLE PARTICLES IN THE SAN GORGONIO NATIONAL MONUMENT.

Weixiang Zhao, Philip K. Hopke. *Department of Chemical Engineering, Clarkson University, Potsdam, NY.*

P13-07. ASSESSING SOURCE CHARACTERISTICS FOR PM_{2.5} IN THE EASTERN UNITED STATES USING THE MULTILINEAR ENGINE TECHNIQUE.

Kateryna Lapina, Kurt Paterson. *Civil and Environmental Engineering, Michigan Technological University, Houghton, MI.*

P13-08. SPECIATION OF AMBIENT PARTICULATE MATTER USING ELECTRON MICROSCOPY TECHNIQUES.

Gary S Casuccio, Traci L Lersch. *Environmental Services, RJ Lee Group, Inc., Monroeville, PA.*

P13-10. SOURCE APPORTIONMENT OF PM_{2.5} IN SEATTLE, WA URBAN IMPROVE SITE: COMPARISON OF THREE RECEPTOR MODELS AND SOURCE PROFILES.

Joellen Lewtas, Naydene Maykut, Eugene Kim, Timothy Larson. *NERL, US EPA, Port Orchard, WA; Puget Sound Clean Air Agency, Seattle, WA; Clarkson University, Potsdam, NY; Univ. of Washington, Seattle, WA.*

P13-11. SOURCE APPORTIONMENT OF PERSONAL EXPOSURE TO PM_{2.5} USING THE CHEMICAL MASS BALANCE MODEL COMBINED WITH PMF-DERIVED SOURCE PROFILES.

Timothy V Larson, Sally Liu, Timothy Gould, Chris Simpson, Candis Claiborn. *Civil & Environmental Engineering, University of Washington, Seattle, WA; Environmental Health, University of Washington, Seattle, WA; Civil & Environmental Engineering, Washington State University, Pullman, WA.*

P13-12. SOURCE APPORTIONMENT OF PM₁₀ AND PM_{2.5} AT A BACKGROUND SITE IN SOUTHERN SWEDEN.

Erik Swietlicki, Adam Kristensson, Hans Areskoug, Hans-Christen Hansson. *Division of Nuclear Physics, Lund University, Lund, Sweden; Institute for Applied Environmental Research, Air Pollution Laboratory, Stockholm, Sweden.*

P13-13. DETERMINATION AND CHARACTERIZATION OF THE AIR POLLUTION SOURCES IN BEIJING.

He Kebin, Yu Xuechun. *Environmental Science & Engineering, Tsinghua University, Beijing, China; Environmental Science & Engineering, Tsinghua University, Beijing, China.*

P13-14. AEROSOL ELEMENTAL COMPOSITION AND SOURCE APPORTIONMENT IN CHILLAN CHILE.

O. F Carvacho, K. Trzepla-Nabaglo, L. L Ashbaugh, R. G Flocchini, J. Celis, P. Melin. *Crocker Nuclear Laboratory, University of California, Davis, CA; Facultad de Ingenieria Agricola, Universidad de Concepcion, Chillan, Chile.*

P13-15. A DIRECTIONAL PROFILE APPROACH TO SOURCE-RECEPTOR MODELING.

Paul C Rohar, Donald V Martello, Richard R Anderson, Delbert J Eatough. *National Energy Technology Laboratory, United States Department of Energy, Pittsburgh, PA; Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT.*

P13-16. IMPROVING SOURCE IDENTIFICATION OF ATLANTA AEROSOL USING THERMAL OPTICAL CARBON FRACTIONS IN POSITIVE MATRIX FACTORIZATION.

Eugene Kim, Philip K Hopke, Pentti Paatero, John J Jansen, Eric S Edgerson. *Chemical Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY; Physics, University of Helsinki, Helsinki, Finland; Southern Company, Atlanta, GA; ARA, Inc., Cary, NC.*

P13-17. SOURCE IDENTIFICATION OF AEROSOL MEASURED AT MULTIPLE SITES ACROSS ST. LOUIS.

Philip K Hopke, Eugene Kim, Petri Tiitta, Joseph P Pinto, William E Wilson. *Chemical Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY; U.S. Environmental Protection Agency, Research Triangle Park, NC; U.S. Environmental Protection Agency, Research Triangle Park, NC.*

P13-18. APPLICATION OF UNMIX AND CMB CALCULATIONS TO AMBIENT PM_{2.5} AIR QUALITY DATA IN THE CINCINNATI AIR SHED.

Shaohua Hu, Rafael McDonald, Pratim Biswas, Dainius Martuzevicius, Sergey A. Grinshpun, Tiina Reponen, Grace LeMasters. *Environmental Engineering Science Program, Washington University in St. Louis, Saint Louis, MO; Department of Environmental Health, University of Cincinnati, Cincinnati, OH.*

P13-19. SOURCE APPORTIONMENT USING PARTICLE SIZE DISTRIBUTION DATA FROM THE PITTSBURGH AIR QUALITY STUDY(PAQS).

Liming Zhou, Eugene Kim, Philip K. Hopke, Charlie Stanier, Spyros Pandis. *Department of Chemical Engineering, Clarkson University, Potsdam, NY; Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.*

P13-20. SOURCE - RECEPTOR RELATIONS OF PM MASS FRACTIONS AND PARTICLE NUMBER CONCENTRATION.

Bostian Gomiscek, Helger Hauck, Hans Puxbaum, Silke Stopper, Othmar Preining. *Clean Air Commission, Austrian Academy of Sciences, Vienna, Austria; Institute of Environmental Health, University of Vienna, Vienna, Austria; Institute for Chemical Technologies and Analytics, Vienna University for Technology, Vienna, Austria.*

P13-21. HIGHLY TIME-RESOLVED MEASUREMENTS OF ELEMENTAL COMPOSITION AT THE BALTIMORE, ST. LOUIS, PITTSBURGH, AND TAMPA SUPERSITES USING THE UM HIGH-FREQUENCY AEROSOL SLURRY SAMPLER: UNPRECEDENTED RESOLUTION OF THE SOURCES OF PRIMARY ATMOSPHERIC AEROSOL.

John M Ondov, J Patrick Pancras, Sarala Gazula, Megan NS Yu, Jay Turner, Allen Robinson, Spyros Pandis, N. D. Poor, R. K. Stevens. *Department of Chemistry and Biochemistry, University of Maryland, College Park, MD; Department of Chemical Engineering, Washington University, St. Louis, MO; Department of Civil Engineering, Carnegie Mellon University, Pittsburgh, PA; USF College of Public Health, Tampa, FL; Florida Department of Environmental Protection, Tallahassee, FL.*

P13-22. MIDDLE SCALE SOURCE CONTRIBUTIONS TO HIGH TIME RESOLUTION PARTICULATE MEASUREMENTS AT THE SAINT LOUIS - MIDWEST SUPERSITE.

Jason S Hill, Bradley P Goodwin, Jay R Turner. *Environmental Engineering Program, Washington University, Saint Louis, MO.*

P13-23. LONG-TERM MEASUREMENT OF ULTRAFINE PARTICLE NUMBER CONCENTRATION IN ROCHESTER, NY.

Cheol-Heon Jeong, Philip K. Hopke, Mark Utell, David Chalupa, Henry D. Felton. *Civil and Environmental Engineering, Clarkson University, Potsdam, NY; Chemical Engineering, Clarkson University, Potsdam, NY; Environmental Medicine, University of Rochester Medical Center, Rochester, NY; Division of Air Resources, New York State Department of Environmental Conservation, Albany, NY.*

P13-24. SINGLE PARTICLE CHARACTERISTICS OF GASOLINE AND DIESEL POWERED VEHICULAR EMISSIONS: CLASSIFICATION, DIFFERENTIATION, AND SOURCE APPORTIONMENT.

Sergio A Guazzotti, Michele Sipin, David A Sodeman, Yongxuan Su, David T Suess, Stephen M Toner, Kimberly A Prather. *Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA.*

P13-25. MULTIDIMENSIONAL ANALYSIS OF ATMOSPHERIC AEROSOL MEASUREMENTS.

Meng-Dawn Cheng, Roger L Tanner, Steven Chan, John ME Storey, Thang Dam. *Environmental Sciences, Oak Ridge National Lab, Oak Ridge, TN; Environmental Research Center, Tennessee Valley Authority, Muscle Shoals, AL.*

P13-26. SHORT-TERM PM_{2.5} SOURCE APPORTIONMENT USING CONTINUOUS SAMPLERS.

Delbert J. Eatough, Russell W. Long, Norman L. Eatough, C. Arden Pope, William E. Wilson. *Chemistry and Biochemistry, Brigham Young University, Provo, UT; Economics, Brigham Young University, Provo, UT; U.S. Environmental Protection Agency, Research Triangle Park, NC.*

P13-27. CHARACTERISTICS OF DAILY FINE PARTICULATE MATTER AT ATLANTA, GA.

Mei Zheng, Armistead G Russell, James J Schauer, Eric S Edgerton, John J Jansen. *School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA; Department of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA; Environmental Chemistry and Technology Program, University of Wisconsin-Madison, Madison, WI; Atmospheric Research and Analysis, Inc., Cary, NC; Southern Company, Birmingham, AL.*

P13-28. CHARACTERIZATION OF CHEMICAL COMPOSITION OF ORGANIC AEROSOL IN THE NORTHEASTERN UNITED STATES.

Min Li, Stephen R. McDow. *Chemistry Department, Drexel University, Philadelphia, PA.*

P13-29. CHARACTERIZATION OF AMBIENT FINE PARTICULATE MATTER IN DELHI, MUMBAI, AND KOLKATA.

Zohir Chowdhury, Mei Zheng, Armistead G. Russell. *School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA; School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA.*

P13-30. SPECIATION OF ORGANIC FINE PARTICULATE MATTER IN HOUSTON AND SOURCE APPORTIONMENT USING MOLECULAR MARKERS.

Matthew P Fraser, Zhiwei W Yue, Birnur Buzcu. *Civil and Environmental Engineering, Rice University, Houston, TX.*

Workshop 14: Susceptibility, Genetics and Biological Indicators

Chair: George Leikauf, U. Cincinnati

Co-Chair: Andrew Ghio, EPA

Tuesday, April 1, 2003

5:00 PM - 6:30 PM

Oral Session

Location: Kings Garden South

OR14-01. QUANTITATIVE TRAIT ANALYSIS OF THE DEVELOPMENT OF PULMONARY TOLERANCE TO ZINC OXIDE IN MICE.

Scott Wesselkamper, Lung Chi Chen, Terry Gordon. *Environmental Medicine, NYU School of Medicine, Tuxedo, NY; Environmental Health, U. of Cincinnati, Cincinnati, OH.*

OR14-02. HYPERTENSIVE RATS ARE SUSCEPTIBLE TO TLR4-MEDIATED SIGNALING FOLLOWING EXPOSURE TO COMBUSTION PARTICULATE MATTER (PM).

Peter S Gilmour, Mette C Schladweiler, Allen D Ledbetter, Urmila P Kodavanti. *CEMALB, UNC, Chapel Hill, NC; ORD, NHEERL, ETD, PTB, US EPA, Research Triangle Park, NC.*

OR14-03. PARTICLE EFFECTS ON HEART RATE REGULATION IN SENESCENT MICE.
Clarke Tankersley, Matt Campen, A Bierman, S Flanders, R Rabold, R Frank. *Environmental Health Sciences, The Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.*

OR14-04. GENE EXPRESSION PATTERN IN SPONTANEOUS HYPERTENSIVE RATS EXPOSED TO URBAN PARTICULATE MATTER (EHC-93).
Ingeborg M. Kooter, John A.J.F. Boere, Daan L.A.C. Leseman, Miriam E. Gerlofs-Nijland, Jan Bos, Renaud Vincent, Flemming R. Cassee. *MGO, National Institute for Public Health and the Environmental (RIVM), Bilthoven, Netherlands; Growth and Development Section, Environmental Health Centre, Ottawa, ON, Canada.*

OR14-05. ALVEOLAR MACROPHAGE PRODUCTION OF INFLAMMATORY CYTOKINES INDUCED BY ULTRAFINE PARTICLES IS INCREASED IN AGED ANIMALS.
Jacob N Finkelstein, Christina M Reed, Carl J Johnston, Alison C Elder, Gunter Oberdorster. *Depts of Environmental Medicine and Pediatrics, University of Rochester, Rochester, NY.*

Workshop 15: Personal, Indoor, and Outdoor Exposures: Measurements and Modeling

Chair: Michael Kleinman, UC Irvine

Co-Chair: John Godleski, EPA

Tuesday, April 1, 2003

5:00 PM - 6:30 PM

Oral Session

Location: Kings Garden North

OR15-01. THE ROLE OF SUBPOPULATION, DISEASE STATE, HOUSING, SEASON AND OTHER FACTORS UPON PERSONAL EXPOSURES TO PM OF AMBIENT ORIGIN.

Ron Williams, Jack Suggs, Gary Evans, Anne Rea, Linda Sheldon, Alan Vette, Burke Janet, Carry Croghan, Kelly Leovic, John Creason, Debra Walsh, Charles Rodes, Jonathan Thornburg, Phil Lawless, Ademola Ejire, Margaret Herbst, William Sanders, Jr. *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; Research Triangle Institute International, Research Triangle Park, NC; Shaw University, Raleigh, NC; Department of Cardiology, University of North Carolina-Chapel Hill, Chapel Hill, NC.*

OR15-02. ESTIMATING OUTDOOR CONTRIBUTIONS TO INDOOR AND PERSONAL PARTICULATE AIR EXPOSURES.

L.-J. Sally Liu, Tim Larson, Lianne Sheppard. *Dept of Environmental Health, University of Washington, Seattle, WA; Dept of Civil and Environmental Engineering; Dept of Biostatistics.*

OR15-03. INFILTRATION BEHAVIOR OF PM_{2.5} CHEMICAL COMPONENTS: IMPLICATIONS FOR PM EXPOSURE ASSESSMENT AND EPIDEMIOLOGICAL ASSOCIATIONS.

Christopher M. Long, Jeremy A. Sarnat. *Health Risk Assessment, Gradient Corporation, Cambridge, MA; Department of Environmental Health, Harvard School of Public Health, Boston, MA.*

OR15-04. TIME-RESOLVED DETERMINATION OF INDOOR, OUTDOOR AND REGIONAL CONCENTRATION RELATIONSHIPS FOR PM_{2.5} NITRATE, SULFATE AND CARBON.

M M Lunden, T L Thatcher, M L Fischer, T W Kirchstetter, K L Revzan, R G Sextro, N J Brown, M R Stolzenburg, S V Hering, J Chow, J Watson. *Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Berkeley, CA; Aerosol Dynamics Inc., Berkeley, CA; Northern Nevada Science Center, Desert Research Institute, Reno, NV.*

Poster Session

Location: Grand Ballroom 2-4

P15-01. REAL-TIME EXPOSURE MEASUREMENTS OF AEROSOL NUMBER, SURFACE-AREA AND MASS (PM_{2.5}) CONCENTRATION IN THE SOUTHERN INDIAN CITY OF MYSORE.

Belagur Prasad, Pramod Pai, Siddappa Belagali, Andrew D Maynard, Penny Andressen, Gurumurthy Ramachandran. *DOS in Environmental Science, University of Mysore, Mysore, India; National Institute for Occupational Safety and Health, Cincinnati, OH; University of Minnesota, Minneapolis, MN.*

P15-02. FIELD EVALUATION OF A PERSONAL CASCADE IMPACTOR SAMPLER (PCIS).

Manisha Singh, Chandan Misra, Constantinos Sioutas. *Department of Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.*

P15-03. INDIVIDUAL PARTICLE ANALYSIS OF PERSONAL SAMPLES FROM THE 1998 BALTIMORE PARTICULATE MATTER STUDY.

Teri L Conner, Ronald W Williams. *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC.*

P15-04. INDOOR AND OUTDOOR ORGANIC PM_{2.5}: ANALYSIS OF RIOPA DATA.

Andrea Polidori, Barbara Turpin, Sandra Lake, Robert Giovannetti, Clifford Weisel, Maria Morandi, Steven Colome, Thomas Stock, Arthur Winer, Jay Min Kwon, Shahnaz Alimokhtari, Derek Shendell, Jennifer Jones, Corice Farrar, Silvia Maberti. *Environmental Sciences, Rutgers University, New Brunswick, NJ; Environmental and Occupational Health Sciences Institute, Piscataway, NJ; School of Public Health, University of Texas, Houston, TX; Integrated Environmental Sciences, Irvine, CA; Environmental Science and Engineering Program, University of California, Los Angeles, CA.*

P15-05. THE EFFECTS OF OZONE AND FINE PARTICULATE MATTER ON THE PULMONARY HEALTH OF ADULT HIKERS IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK.

Steven P Girardot, Catherine C Collins, Ryan W Malone, Cynthia A Atterholt, Wayne T Davis, Charles B Hamilton, James R Renfro, P. Barry Ryan, Susan M Smith, Gregory D Reed. *Department of Chemistry, Emory University, Atlanta, GA; Department of Health and Safety Sciences, University of Tennessee, Knoxville, TN; Department of Civil and Environmental Engineering, University of Tennessee, Knoxville, TN; Department of Chemistry and Physics, Western Carolina University, Cullowhee, NC; National Park Service, Great Smoky Mountains National Park, Gatlinburg, TN; Rollins School of Public Health, Emory University, Atlanta, GA.*

P15-06. COMPARISON OF COLLOCATED PERSONAL MULTI-POLLUTANT SAMPLERS VS. A CENTRAL AMBIENT AIR MONITORING STATION IN STEUBENVILLE, OHIO.

Stephen E Winter, Vincent B Conrad, Jeffrey A Withum, Robert M Statnick, Richard A Bilonick, Petros Koutrakis, Helen H Suh, Stefanie T Ebelt. *Research and Development, CONSOL Energy Inc., South Park, PA; Department of Environmental Health, Harvard School of Public Health, Boston, MA.*

P15-07. EIGHT YEAR TRENDS IN FINE PARTICLE CONCENTRATIONS, COMPOSITION, AND GASEOUS CO-POLLUTANTS IN THE SOUTHERN CALIFORNIA CHILDREN'S HEALTH STUDY.

Frederick W. Lurmann, Siana H. Alcorn, Clint A. Taylor. *Sonoma Technology, Inc., Petaluma, CA; California Air Resources Board, Sacramento, CA.*

P15-08. AIR QUALITY AND COMPARATIVE EXPOSURE: A PARCEL-LEVEL CUMULATIVE RISK ANALYSIS.

Amanda B Aretz, Rachael E Moeller-Gorman. *Center for Environmental Studies, Brown University, Providence, RI.*

P15-09. WOMEN'S PERSONAL AND INDOOR EXPOSURES TO PM_{2.5} IN MYSORE, INDIA - IMPACT OF DOMESTIC FUEL USAGE.

Penny Andresen, Pramod Pai, Gurumurthy Ramachandran, Andrew Maynard, Belagur Prasad, Sidappa Belagali. *Division of Environmental and Occupational Health, University of Minnesota, Minneapolis, MN; DOS in Environmental Science, University of Mysore, Mysore, Karnataka, India; National Institute for Occupational Safety and Health, Cincinnati, OH.*

P15-10. ASSESSING HUMAN EXPOSURES OF COPD-DIAGNOSED INDIVIDUALS TO PARTICULATE MATTER IN LOS ANGELES COUNTY.

Gavin Lau, Barbara Turpin, Amanda Wheeler, Helen Suh, Steven Colome, Dalia Spektor. *Environmental Sciences, Rutgers University, New Brunswick, NJ; School of Public Health, Harvard University, Boston, MA; Integrated Environmental Sciences, Irvine, CA; Rand Corporation, Santa Monica, CA.*

P15-11. PERSONAL EXPOSURES TO PARTICULATE MATTER AND ITS COMPONENTS AMONG CHILDREN WITH ASTHMA.

Fuyuen Y Yip, Gerald J Keeler, J. Timothy Dvonch, Thomas G Robins, Edith A Parker, Wilma Brakefield-Caldwell. *Environmental Health Sciences, University of Michigan, Ann Arbor, MI; Health Behavior and Health Education, University of Michigan, Ann Arbor, MI; Steering Committee Member, Community Action Against Asthma, Detroit, MI.*

P15-12. HOURLY PERSONAL EXPOSURE TO INDOOR- AND OUTDOOR-GENERATED PARTICLES AMONG SENSITIVE POPULATIONS IN SEATTLE.

Ryan Allen, Tim Larson, L.J.-Sally Liu. *Dept. of Env. Health, University of Washington; Dept. of Civil and Env. Engineering, University of Washington, Seattle, WA.*

P15-13. SPATIAL VARIABILITY OF PM EXPOSURES AS DETERMINED IN THE THE FRESNO ASTHAMTIC CHILDREN'S ENVIRONMENT STUDY (FACES).

Frederick W. Lurmann, Nicole Pauly Hyslop, Paul T. Roberts, David L. Vaughn, S. Katharine Hammond. *Sonoma Technology, Inc., Petaluma, CA; School of Public Health, University of California, Berkeley, CA.*

P15-14. INVESTIGATIONS OF THE SENSITIVITY OF A PREDICTIVE MODEL OF INDOOR CONCENTRATIONS OF OUTDOOR PM-2.5 TO CHANGES IN HOUSE OPERATIONAL AND ENVIRONMENTAL PARAMETERS.

Marc L Fischer, Melissa M Lunden, Tracy L Thatcher, David Littlejohn, Thomas W Kirchstetter, Susanne V Hering, Richard G Sextro, Nancy J Brown. *Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Berkeley, CA; Research and Development, Aerosol Dynamics Incorporated, Berkeley, CA.*

P15-15. COMMUTERS' EXPOSURE TO PM_{2.5}, CO AND BENZENE INSIDE THE PUBLIC TRANSPORT IN MEXICO CITY:

Jorge E. Gómez-Perales, Roy N. Colville, Mark J. Nieuwenhuijsen, Adrián A. Fernández-Bremauntz, Víctor J. Gutiérrez-Avedoy, Víctor H. Páramo-Figueroa, Salvador Blanco-Jiménez, Francisco Mandujano, Rosa Bernabe, Elbagris Segovia-Estrada, Emma Bueno-López. *Dept. Environmental Science and Technology, Imperial College of Science, Technology and Medicine, London, United Kingdom; CENICA and Dirección General de Investigación sobre la Contaminación Urbana, Regional y Global, Instituto Nacional de Ecología, SEMARNAT, Mexico, DF, Mexico; Dirección General de Gestión Ambiental del Aire, Secretaria del Medio Ambiente, GDF, México, DF, Mexico.*

P15-16. CHARACTERIZING PERSONAL EXPOSURES TO AMBIENT AND NON-AMBIENT PM_{2.5} FOR THREE SENSITIVE COHORTS IN BOSTON AND BALTIMORE.

Kathleen W Brown, Jeremy A Sarnat, Petros Koutrakis. *Environmental Health, Harvard School of Public Health, Boston, MA.*

P15-17. FACTORS AFFECTING PERSONAL AND INDOOR CONCENTRATIONS OF PM_{2.5}, PARTICULATE NITRATE, AND ELEMENTAL CARBON FOR INDIVIDUALS WITH COPD IN LOS ANGELES, CA.

Li-Te Chang, Amanda Wheeler, Helen H Suh. *Environmental Science & Engineering Program, Harvard School of Public Health, Boston, MA.*

P15-18. MICROENVIRONMENTAL MODELING OF PERSONAL EXPOSURES TO PARTICULATE MATTERS AMONG ASTHMATIC CHILDREN.

Chang-Fu Wu, Ralph J. Delfino, Joshua N. Floro, Behzad S. Samimi, Penelope J.E. Quintana, Michael T. Kleinman, Lee-Jane S. Liu. *Department Environmental Health, University of Washington, Seattle, WA; Department of Medicine, University of California at Irvine, Irvine, CA; Division of Occupational and Environmental Health, San Diego State University, San Diego, CA; Department of Community and Environmental Medicine, University of California at Irvine, Irvine, CA.*

P15-19. EXAMINING FACTORS THAT INFLUENCE THE POTENTIAL FOR CONFOUNDING IN PM EPIDEMIOLOGY.

Stefanie T Ebelt, Joel Schwartz, Brent Coull, Petros Koutrakis, Helen H Suh. *Environmental Health, Harvard School of Public Health, Boston, MA; Biostatistics, Harvard School of Public Health, Boston, MA.*

P15-20. RELATION BETWEEN AMBIENT AND EXPOSURE CONCENTRATIONS FOR PARTICULATE MATTER AND ITS TOXIC CONSTITUENTS IN AN INDIAN METROPOLITAN REGION.

Rashmi S. Patil, Milind M. Kulkarni. *Centre for Environmental Science and Engineering, Indian Institute of Technology, Bombay, Mumbai, Maharashtra, India; Civil Engineering Department, Sardar Patel College of Engineering, Mumbai, Maharashtra, India.*

P15-21. WILDFIRES AND PRESCRIBED BURNS IN COLORADO: IMPACT ON AIR QUALITY.

David Tanner, Toni Newville, Michael Hannigan, Jana Milford, Shelly Miller. *Mechanical Engineering Department, University of Colorado, Boulder, CO.*

P15-22. CHARACTERIZATION OF RESUSPENDED HOUSE DUST AS A SOURCE OF PM EXPOSURE.

Andrea R. Ferro, Royal J. Kopperud, Lynn M. Hildemann. *Civil and Environmental Engineering, Clarkson University, Potsdam, NY; Civil and Environmental Engineering, Stanford University, Stanford, CA.*

P15-23. ANALYSIS OF INDOOR, OUTDOOR AND PERSONAL PM_{2.5} SPECIES TO ASSESS THE SOURCES OF EXPOSURE: RESULTS FROM RIOPA.

Qing Yu Meng, Barbara J Turpin, Andrea Polidori, Brian Buckley, Clifford Weisel, Maria Morandi, Steven Colome, Thomas Stock, Arthur Winer, Jong Hoon Lee, Robert Giovanetti, William Cui, Jay Min Kwon, Shahnaz Alimokhtari, Shendell Derek, Jones Jennifer, Corice Farrar, Sylvia Maberti. *Environmental Sciences, Rutgers University, New Brunswick, NJ; Environmental and Occupational Health Institute, Piscataway, NJ; School of Public Health, University of Texas, Houston, TX; Integrated Environmental Sciences, Irvine, CA; Environmental Science and Engineering Program, University of California, Los Angeles, CA.*

P15-24. MECHANISTIC ANALYSIS OF FTIR SPECTRA FROM OUTDOOR, INDOOR AND PERSONAL PM_{2.5} SAMPLES COLLECTED DURING RIOPA.

Adam Reff, Barbara Turpin, Robert Porcja, Jong Hoon Lee, William Cui, Silvia Maberti, Jay Min Kwon, Shahnaz Alimokhtari, Derek Shendell, Jennifer Jones, Corice Farrar, Clifford Weisel, Maria Morandi, Steven Colome, Thomas Stock, Arthur Winer. *Department of Environmental Sciences, Rutgers University, New Brunswick, NJ; School of Public Health, University of Texas, Houston, TX; Environmental and Occupational Health Sciences Institute, Piscataway, NJ; Environmental Science and Engineering Program, University of California, Los Angeles, CA; Integrated Environmental Sciences, Irvine, CA.*

P15-25. CONTROLLED EXPOSURE CHAMBER STUDIES AND THE IMPACT OF PM_{2.5} ON HUMAN HEALTH.

Brett D Grover, Delbert J Eatough, Norman L Eatough, Jeremy S Richards, C. Arden Pope. *Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT; Department of Economics, Brigham Young University, Provo, UT.*

P15-26. CHEMISTRY AS A SOURCE OF INDOOR PARTICLES.

Charles J Weschler. *EOHSI, UMDNJ-Robert Wood Johnson Medical School/Rutgers, Piscataway, NJ.*

P15-27. CONTINUOUS MONITORING OF FINE PARTICLES FROM SHOWERING.

Kenneth A Cowen, Will M Ollison. *Atmospheric Science and Applied Technology, Battelle, Columbus, OH; Regulatory Analysis and Scientific Affairs, American Petroleum Institute, Washington, DC.*

P15-28. CHARACTERIZATION OF FINE PARTICULATE MATTER IN OHIO: INDOOR, OUTDOOR, AND PERSONAL EXPOSURES.

Bian Liu, Kevin C Crist, Kuruvilla John. *Health Science, Ohio University, Athens, OH; Environmental Engineering, Texas A&M University-Kingsville, Kingsville, TX.*

P15-29. INFILTRATION BEHAVIOR OF PM_{2.5} CHEMICAL COMPONENTS: IMPLICATIONS FOR PM EXPOSURE ASSESSMENT AND EPIDEMIOLOGICAL ASSOCIATIONS.

Christopher M. Long, Jeremy A. Sarnat. *Health Risk Assessment, Gradient Corporation, Cambridge, MA; Department of Environmental Health, Harvard School of Public Health, Boston, MA.*

P15-30. THE ROLE OF SUBPOPULATION, DISEASE STATE, HOUSING, SEASON AND OTHER FACTORS UPON PERSONAL EXPOSURES TO PM OF AMBIENT ORIGIN.

Ron Williams, Jack Suggs, Gary Evans, Anne Rea, Linda Sheldon, Alan Vette, Burke Janet, Carry Croghan, Kelly Leovic, John Creason, Debra Walsh, Charles Rodes, Jonathan Thornburg, Phil Lawless, Ademola Ejire, Margaret Herbst, William Sanders, Jr. *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; Research Triangle Institute International, Research Triangle Park, NC; Shaw University, Raleigh, NC; Department of Cardiology, University of North Carolina-Chapel Hill, Chapel Hill, NC.*

P15-31. ESTIMATING OUTDOOR CONTRIBUTIONS TO INDOOR AND PERSONAL PARTICULATE AIR EXPOSURES.

L.-J. Sally Liu, Tim Larson, Lianne Sheppard. *Dept of Environmental Health, University of Washington, Seattle, WA; Dept of Civil and Environmental Engineering; Dept of Biostatistics.*

P15-33. TIME-RESOLVED DETERMINATION OF INDOOR, OUTDOOR AND REGIONAL CONCENTRATION RELATIONSHIPS FOR PM_{2.5} NITRATE, SULFATE AND CARBON.

M M Lunden, T L Thatcher, M L Fischer, T W Kirchstetter, K L Revzan, R G Sextro, N J Brown, M R Stolzenburg, S V Hering, J Chow, J Watson. *Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Berkeley, CA; Aerosol Dynamics Inc., Berkeley, CA; Northern Nevada Science Center, Desert Research Institute, Reno, NV.*