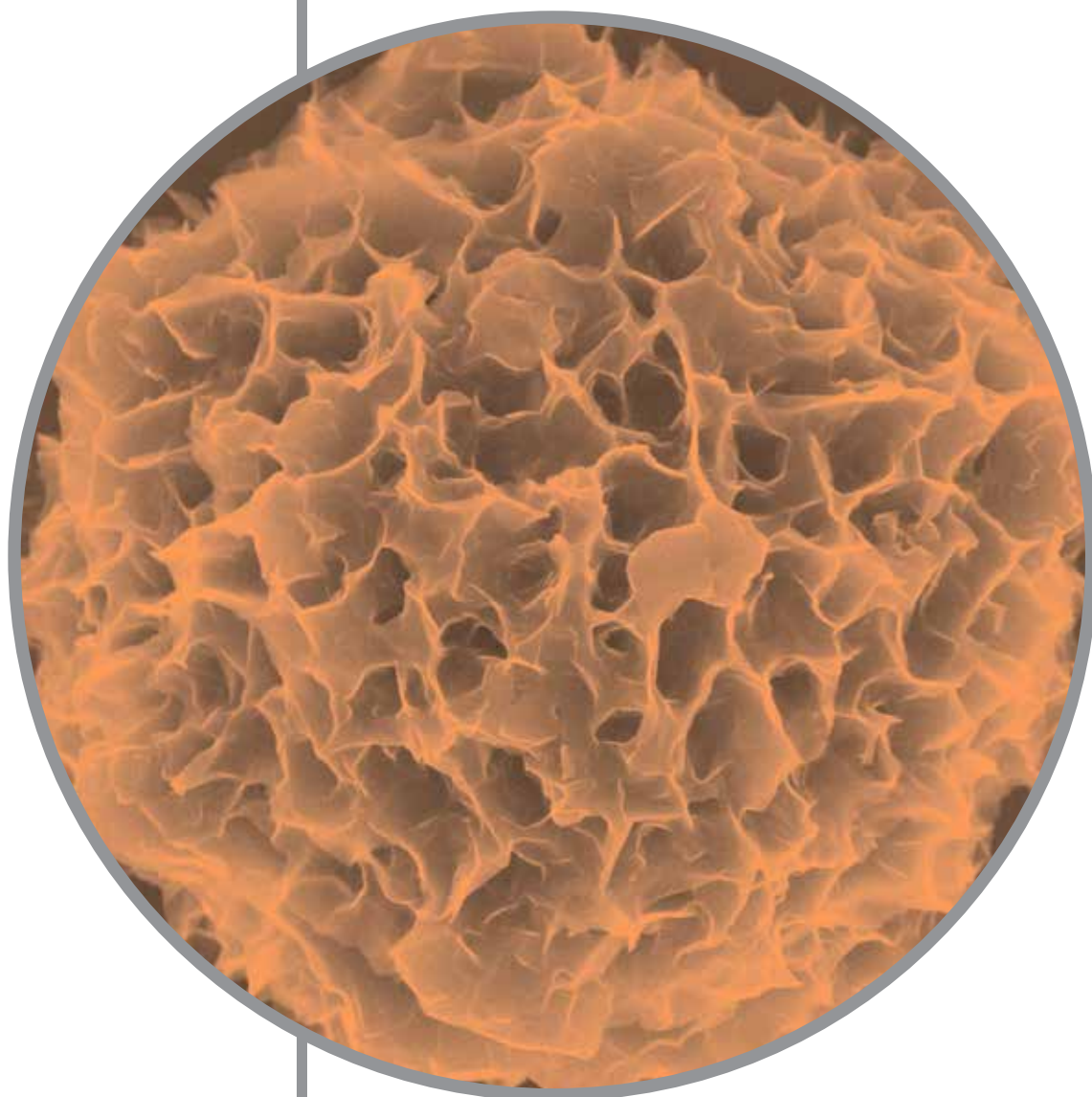


American Association for Aerosol Research

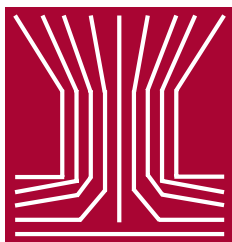
2020

Our Investment in the Future of AAAR

ENDOWMENT FUND ANNUAL REPORT



Metal Organic Framework Fireball Particle | 500 nm (Zn-TDPAT)
Clay Kacica & Sukrant Dhawan
Washington University in St. Louis



The Hovering Drone
Carnegie Mellon University

Mission

Dear Colleague,

The mission of the American Association for Aerosol Research Endowment Fund

is to assist in advancing aerosol science and technology by providing stable, long-term financial support for the Association's programs. The goal is to establish and increase in net worth a set of funds that will provide significant financial support to aid in achieving AAAR's strategic objectives. The Endowment Fund is intended to complement AAAR's revenue from dues and other sources. This mission is enabled by the generous contributions of fellow colleagues, their friends and families, and aerosol instrumentation companies and currently realized by funding awards, plenary lectures and a strategic project developed by the Vice-President Elect.

AAAR endowment funds are invested in a blend of high-quality stocks and bonds following the AAAR investment policy. During 2020, net assets grew from approximately \$596,000 to approximately \$690,000, including contributions to establish a new fund and investment gains as detailed in the table on the last page of this report. A total of about \$19,000 was disbursed from the endowment funds to support AAAR activities, including five AAAR awards, a joint award with the International Society of Aerosols in Medicine, and support for the Friedlander Memorial Plenary Lecture. Further details about the current funds and how they were used in 2020 can be found in the following pages.

We are excited to announce that in early 2021 a new account to support the Susanne V. Hering Award was established. This award, which honors Susanne Hering for her technological innovations and her efforts in developing AAAR, was presented for the first time at the 2021 Annual Conference. In addition, this year the Endowment Committee, with support from the AS&T Editorial Office and Early Career Committee, launched the AS&T Paper Lecture Series. This new initiative was supported by the Friedlander Memorial Fund with the hope of being able to highlight the research in our community, tie our journal to other AAAR activities, and provide an opportunity to bring us all together outside of the Annual Conference. Each month the Editors of AS&T selected a high impact journal article to be presented by its author. For each lecture one of AAAR's Student Chapters served as host. In case you missed any or would like to view them again, all lectures are available at:

<https://www.aaar.org/meetings-events/aaar-lecture-series/>

On behalf of the entire Endowment Committee, thank you for your contributions!

Sincerely yours,

Amy P. Sullivan
Endowment Committee Chair

Current Endowment Funds and 2020 Activities

The AAAR Endowment Funds are comprised of sub-funds that are either True Endowment Funds or Quasi Endowment Funds. True Endowment Funds are established by a donor-restricted gift. The original value of gifts contributed to True Endowment Funds CANNOT be spent. The income and appreciation earned by True Endowment Funds provide a permanent source of expendable revenue in perpetuity for the purposes specified by the donor and agreed to by AAAR. Quasi Endowment Funds are created by donor gifts or by AAAR Board designation, and are treated the same as True Endowment Funds except that the original contributions CAN BE spent according to the purpose of the fund and may have a finite lifetime. The AAAR Endowment Funds currently have four True Endowment Funds and six Quasi Endowment Funds.

Micro Helicopter Seeds

Chethani Athukorala and
Hema Ravindran
Clarkson University

“ I am honored to have received the 2020 Friedlander Award. When I started my PhD work, my goal was simply to improve my own knowledge so that I could be more productive at my full-time job at the Nuclear Regulatory Commission. I was fortunate to have excellent advisors who pushed me to do my best and to exceed my own expectations. That my research made even a minor impact on the field of aerosol science is largely due to their support, for which I am eternally grateful.”

— **James Corson**
2020 Friedlander
Dissertation Award

TRUE ENDOWMENT FUNDS

Sheldon K. Friedlander Memorial Fund for Promoting Aerosols as an Enabling Discipline:

This fund was established in 2009 by the family of Sheldon Friedlander with a \$50,000 donation. Friends and colleagues contributed additional funds. *The goal of the fund is to provide for activities related to promoting aerosols as an enabling discipline, such as supporting plenary lectures and special symposia at the annual conference.*

The 2020 Friedlander Lecture entitled “Atmospheric Aerosol Chemistry: Climate and Air Quality” was presented by **Douglas R. Worsnop** of Aerodyne Research, Inc. and INAR (Physics) at the University of Helsinki.

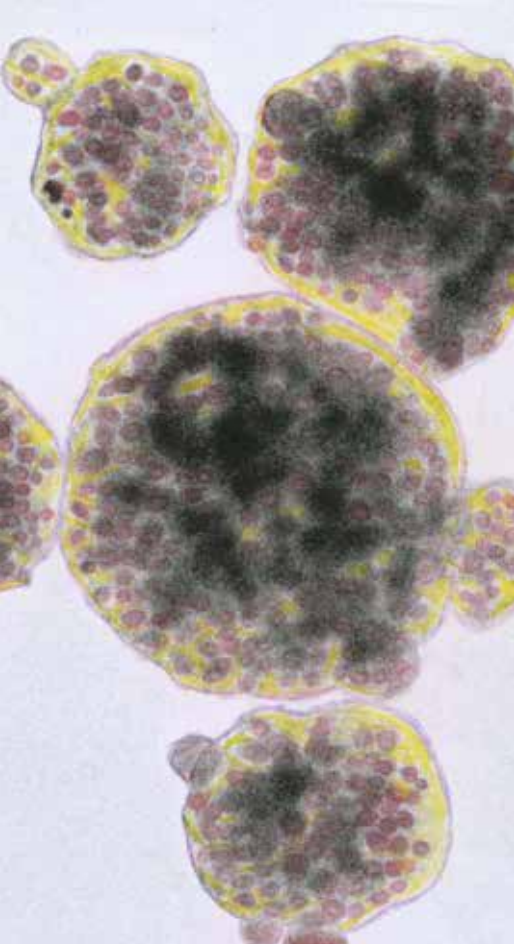
Fissan-Pui-TSI Award Fund:

This fund was established in 2005 with a \$75,000 donation from TSI Incorporated, which provided the award amount in 2006 and \$65,000 to support future awards. The award is granted by the International Aerosol Research Assembly (IARA) to recognize international collaboration in the field of aerosol science and technology between researchers/engineers residing on at least two different continents. The award is presented every four years at the International Aerosol Conference.

The Fissan-Pui-TSI Award was not awarded in 2020.

Presidents Fund:

This fund was started in 2016 with a generous donation from David Ensor and additional contributions from Past AAAR Presidents. The Board of Directors then voted to contribute matching funds to bring the Presidents Fund up to the amount of a True Endowment. An official account was set-up in early 2019. The donors decided that the Vice-President Elect would use the income from this fund to help support an activity they would like to help establish during their presidency to further support the mission of AAAR. The Vice-President Elect presents their ideas during the Long-Range Planning Committee Meeting held each year at the Annual Conference.



Pomegranate Particles

Yijia Liang

Argonne National Laboratory

Huajun Tian

University of Technology Sydney

Sheryl Ehrman

San Jose State University



I am thrilled to be a recipient of the 2020 Thomas J. Mercer Award. This award supports and recognizes research in aerosol sciences, air pollution, and environmental health impacts, and I am honored to join the ranks of previous awardees that have made major contributions in these fields. Some of those awardees have made my work possible through mentoring and collaboration.”

— **Mark Frampton**

2020 Mercer Joint Award

AS&T Outstanding Publication Award Fund:

The AS&T Outstanding Publication Award was established in 2015 and is presented annually to recognize a paper published in *Aerosol Science and Technology (AS&T)* that has had a significant impact on the field. Part of this award is provided by Taylor and Francis, who publishes AS&T, and part by AAAR. This fund was created in late 2018 to provide AAAR's portion of the award with a generous donation from Peter McMurry and additional contributions from other previous and current AS&T Editors. The Board of Directors then voted to contribute matching funds to bring the AS&T Outstanding Publications Award Fund up to the amount of a True Endowment. An official account was set-up in early 2019.

In 2020 the AS&T Outstanding Publication Award was presented to **John T. Jayne, Danna C. Leard, Xuefeng Zhange, Paul Davidovits, Kenneth A. Smith, Charles E. Kolb, and Douglas R. Worsnop** for their 2000 paper entitled “Development of an Aerosol Mass Spectrometer for Size and Composition Analysis of Submicron Particles”.

QUASI ENDOWMENT FUNDS:

Sheldon K. Friedlander Dissertation Award Fund:

Revenue from this fund supports the monetary prize for the Sheldon K. Friedlander Award which recognizes an outstanding dissertation by an individual who has recently earned a doctoral degree. The dissertation can be in any discipline in the physical, biomedical, or engineering sciences but must be in the field of aerosol science and technology. The award memorializes Sheldon Friedlander for his leadership as a researcher, teacher, and pioneer in aerosol science. One of AAAR's founders, Friedlander is a past recipient of the distinguished Fuchs Memorial Award. He directed graduate students at Columbia University, The Johns Hopkins University, the California Institute of Technology, and the University of California for more than 50 years.

The 2020 Sheldon K. Friedlander Dissertation Award was presented to **James Corson** for his dissertation work at the University of Maryland entitled “Predicting the Transport Properties of Aerosol Particles in Creeping Flow from the Continuum to the Free Molecular Regime”.

Thomas T. Mercer Joint Prize Fund:

Sponsored by AAAR and the International Society for Aerosols in Medicine (ISAM), the Thomas T. Mercer Joint Prize recognizes excellence in the areas of pharmaceutical aerosols and inhalable materials. The award honors the legacy of Thomas T. Mercer, an outstanding researcher and author whose work encompassed aerosol physics and chemistry as well as inhalation toxicology, industrial hygiene, and health physics. The award is funded by contributions from the Mercer Family Foundation, as well as contributions from ISAM and revenue from this fund.

The 2020 Thomas T. Mercer Joint Prize was presented to **Mark Frampton** at the University of Rochester Medical Center for their work in combining aerosol characterization and human inhalation exposures with clinical measures to address problems of environmental and occupational aerosol exposure.

“ I wish to thank the AAAR for honoring me with the 2020 David Sinclair Award. AAAR has been my intellectual home for more than two decades. I am so grateful to all my students and colleagues from whom I have learned so much. Surrounding myself with incredible talent and then getting out of the way has been the key to my success.”

— **Allen Robinson**
2020 Sinclair Award

“ I am deeply honored to receive the Whitby Award and very grateful to my postdocs, students and collaborators. It encourages me greatly to further advance modeling and experimental investigations on aerosol chemistry.”

— **Manabu Shiraiwa**
2020 Whitby Award

“ Receiving the Benjamin Y. H. Liu Award is very special to me as my first aerosol course was taught by Dr. Liu 20 years ago. This award motivates me to continue developing instruments and methods to better characterize aerosols.”

— **Xiaoliang Wang**
2020 Liu Award

David Sinclair Award Fund:

Revenue from this fund supports the David Sinclair Award, which recognizes sustained excellence in aerosol research and technology by an established scientist still active in his/her career. The individual's research must have a lasting impact in aerosol science. The award memorializes David Sinclair, one of aerosol science's great innovators, known for his knowledge, ingenuity, and energy.

The 2020 David Sinclair Award was presented to **Allen Robinson** at Carnegie Mellon University for their seminal research on semi-volatile emissions and photochemical aging as well as changing the way we all look at organic aerosol emissions in the atmosphere.

Kenneth T. Whitby Award Fund:

This fund supports the Kenneth T. Whitby Award, which recognizes outstanding technical contributions to aerosol science and technology by a young scientist. The purpose of the award is to encourage continued work in the field. The award memorializes Kenneth T. Whitby, known for his contributions to aerosol measurement, the study of aerosol properties and behavior, and the nature of atmospheric aerosols.

The 2020 Kenneth T. Whitby Award was presented to **Manabu Shiraiwa** at the University of California – Irvine for their highly original research on kinetic modeling of reactive processes of atmospheric organic aerosol, viscosity and volatility of organic aerosol, and molecular-level processes related to the health impacts of air pollutants.

Benjamin Y. H. Liu Award Fund:

This fund supports the Benjamin Y. H. Liu Award which recognizes outstanding contributions to aerosol instrumentation and experimental techniques that have significantly advanced the science and technology of aerosols. The award honors Benjamin Liu for his leadership in the aerosol community and his own seminal contributions to aerosol science through instrumentation and experimental research.

The 2020 Benjamin Y. H. Liu Award was awarded to **Xiaoliang Wang** in the Division of Atmospheric Science of the Desert Research Institute for their unique skills and extraordinary abilities in instrument development and aerosol research.

Fuchs Memorial Award Fund:

The Fuchs Memorial Award is the premier international prize in aerosol science and is sponsored by AAAR, the Gesellschaft für Aerosolforschung (GAeF) and the Japan Association of Aerosol Science and Technology (JAAS). This fund supports AAAR's contribution to the award. Presented every four years at the International Aerosol Conference, the award memorializes Nikolai Albertovich Fuchs, the great Russian scientist who is regarded by many as the “father of aerosol science.” The award recognizes outstanding worldwide contributions to the field of aerosol research.

The Fuchs Memorial Award was not awarded in 2020.



OUR NEW FUND

Susanne V. Hering Award Fund:

The newest True Endowment fund was established in 2021 to honor Susanne V. Hering, Founder and President of Aerosol Dynamics, Inc. as well as a previous AAAR President, Conference Chair, Board Member, Plenary Speaker, Tutorial Speaker, and Benjamin Y.H. Liu Award Winner. This new award will recognize outstanding contributions to aerosol science by a scientist whose work has had a significant impact on public health, the built environment, or the global ecosystem. Donations by colleagues, friends, and aerosol technology companies (see Acknowledgements on page 9) were matched by the Board to create a True Endowment. The first award was presented at the 2021 Annual Conference.

It is truly special to have been awarded the 2020 AS&T Outstanding Publication Award. On behalf of all the co-authors on this paper we thank AS&T and the AAAR awards committee for this recognition. This paper was published in 2000 in a special AS&T issue on aerosol mass spectrometry when this field was rapidly growing. There were 12 other aerosol mass spectrometer instrument papers in that special issue. Our group at Aerodyne started the development of the AMS in 1996. Over the past 25 years, we have maintained many great collaborations and built a special community of researchers, both of which have played an important role in developing and using this instrument technology to help advance our understanding of the chemistry and chemical transformation of atmospheric aerosol (and more). In my opinion, it is really the entire AMS user community that is also being recognized by this award; they have made this paper one of the most highly cited papers in AS&T. I would also like to note that in 2018 this Outstanding Publication Award was given to the 1995 paper by Liu, Ziemann, Kittelson and McMurray for their work on developing something called a ‘Particle Aerodynamic Lens’. That device has been an enabling technology for this and many other aerosol mass spectrometer systems. It is very rewarding to see how technical developments can lead to such advances in this field and to be part of that development.”

— **John Jayne**
2020 AS&T Outstanding Publication Award

Endowment Committee (2020-2021)

The Endowment Committee oversees the management of the AAAR Endowment Funds and provides leadership for AAAR’s philanthropy-based, long-term fundraising activities. The Committee is responsible for developing, reviewing, revising, and implementing policies for fundraising, and making recommendations to the Board for the use of the funds to support AAAR’s programs. The Committee develops philanthropy-based fundraising goals, spearheads fundraising activities and educates AAAR members as to the value of philanthropic giving to AAAR’s Endowment Funds.

Members of the Endowment Committee:

Tyler Beck	2018-2021
Susanne Hering	2018-2021
Jim Smith	2018-2021
Amy Sullivan, Chair	2018-2022
Murray Johnston	2019-2020
Anthony Wexler	2019-2022
Andrea Ferro	2020-2021
Jay Turner	2020-2023



A roar of spores: A Look at the Fungal Aerosol Emission
Hema Priyamvada
 Clarkson University

Building the Future

The Endowment Committee seeks to engage AAAR members, and their families and friends, in establishing and directing the future of the endowment. The AAAR Board has identified a number of useful activities that could be supported through the return from an endowment fund (listed in the table below). We welcome members' thoughts regarding these activities and any others that could make AAAR more effective in fostering and supporting aerosol science. Named funds to memorialize the legacy of prominent members of the aerosol community are a possibility as well. Please send your ideas to the Committee Chair:

Amy Sullivan at sullivan@atmos.colostate.edu.

If you would like to help initiate any of these potential sub-funds or others of your choice, please let us know and, of course, we would welcome any contributions you wish to make. An on-line donation portal along with a description of all our funds can be found on the AAAR website at:

<https://www.aaar.org/donations/>

Table 1.
Ideas for Potential New Endowment Funds to Support AAAR's Mission

Concept	Annual Spending	Endowed Amount*
Student Poster Prizes <i>(To award 10 at \$200 each)</i>	\$ 2,000	\$ 50,000
Early Career Travel Grant <i>(To cover registration, lodging and some travel)</i>	\$ 2,000	\$ 50,000
Early Career Event	\$ 2,000	\$ 50,000
Plenary Lectures <i>(2 – To cover honorarium, lodging and some travel)</i>	\$ 4,000	\$ 100,000
Student Travel Grants <i>(To award 20 at \$500 each)</i>	\$ 10,000	\$ 250,000

*Endowed amount is based on assuming a 4% average rate of return on investments to support annual spending.

Your Brain on Acid(ic Aerosols)

Ziyang Lei
Nicole Olson
Madeline Cooke
Andrew Ault
 University of Michigan

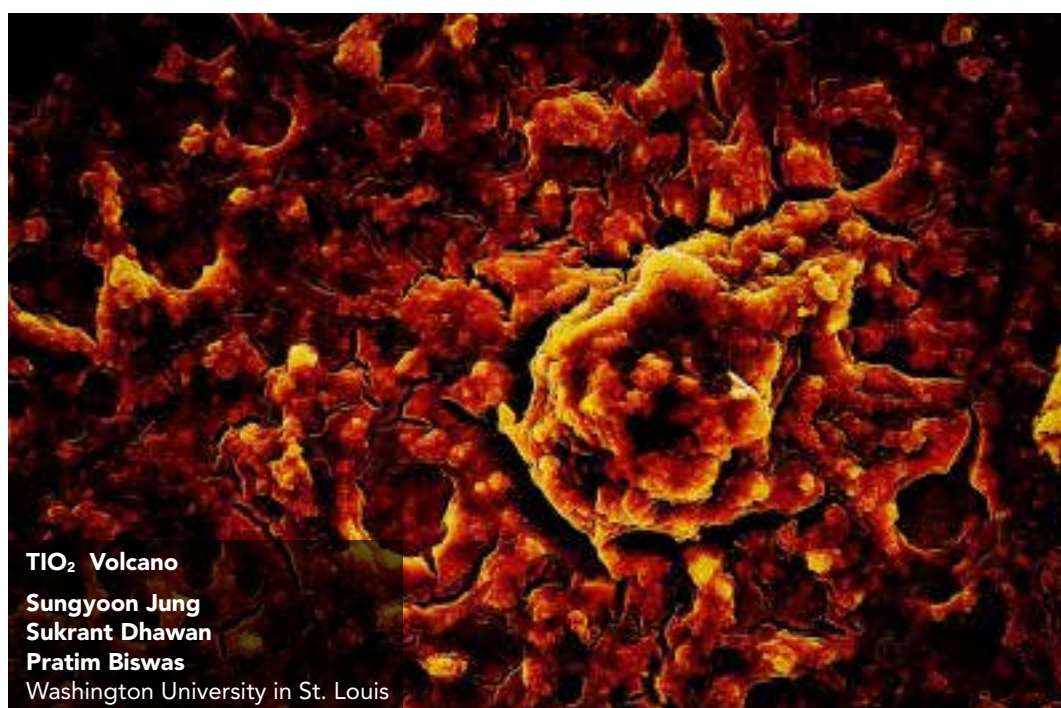
Yue Zhang
Yuzhi Chen
Jason Surratt
 University of
 North Carolina

Jing Zhang
Mark Banaszak Holl
 Monash University

Status of the Funds in 2020

AAAR Endowment Funds Financial Summary for 2020

Name of Endowment Fund	Net Assets <i>Beginning of Year 1/1/2020</i>	Contributions + Matching Funds	Total Disbursed	Net Return <i>Gain/Loss + Interest - Fees</i>	Estimated Net Assets <i>End of Year 12/31/2020</i>
True Endowment Funds <i>(Permanently Restricted Corpus, Remainder Temporarily Restricted)</i>					
Friedlander Memorial Fund <i>(\$50,000 Corpus)</i>	\$ 115,508		\$ 500	\$ 12,333	\$ 127,341
Fissan-Pui-TSI Award Fund <i>(\$65,000 Corpus)</i>	\$ 114,562			\$ 12,205	\$ 126,766
Presidents Fund <i>(\$50,000 Corpus)</i>	\$ 54,337			\$ 5,780	\$ 60,117
AS&T Outstanding Publication Award Fund <i>(\$50,100 Corpus)</i>	\$ 54,447		\$ 2,062	\$ 5,780	\$ 58,165
Susanne V. Hering Award Fund		\$ 28,000*			\$ 28,000
Quasi Endowment Funds <i>(Board Designated)</i>					
Friedlander Dissertation Award Fund	\$ 43,622		\$ 1,562	\$ 5,001	\$ 47,060
Thomas T. Mercer Joint Prize Fund	\$ 41,764	\$ 9,000	\$ 10,077	\$ 4,843	\$ 45,530
David Sinclair Award Fund	\$ 41,606		\$ 1,562	\$ 4,793	\$ 44,837
Kenneth T. Whitby Award Fund	\$ 40,184		\$ 1,562	\$ 4,633	\$ 43,255
Benjamin Y. H. Liu Award Fund	\$ 45,530		\$ 1,562	\$ 5,401	\$ 49,369
Fuchs Memorial Award Fund	\$ 44,732			\$ 5,052	\$ 49,784
<i>*Board matching occurred in early 2021</i>					



Donor Acknowledgement

We would like to formally thank and recognize these donors for their generous contributions and support of our new Endowment Funds.

Susanne V. Hering Award Fund

Aerodyne Research, Inc.	Peter McMurry
Aerosol Devices, Inc.	Marit Meyer
Arthur Chan	Don Milton
Jeff Collett, Jr.	Kiran Mital
Donald Dabdub	Nga Lee Ng
Ann Dillner	Patrick O'Shaughnessy
Arantza Eiguren-Fernandez	David Pui
David Ensor	Fred Quant
Andrea Ferro	Paul Roberts
Rick Flagan	John Seinfeld
Barbara Finlayson-Pitts	Gil Sem
Rob Griffin	Jim Smith
Allen Goldstein	Chris Sorensen
Susanne Hering	R. Subramanian
Gabriel Isaacman-VanWertz	Amy Sullivan
Carol and Walter John	TSI
Murray Johnston	Barbara Turpin
Sonia Kreidenweis	Jian Wang
Chongai Kuang	Tony Wexler
Ernie Lewis	Leah Williams
Greg Lewis	C.Y. Wu
Linsey Marr	Barbara Wyslouzil
V. Faye McNeill	Anonymous

A Cherry Blossom of Gold

Namsoon Eom
Lund University