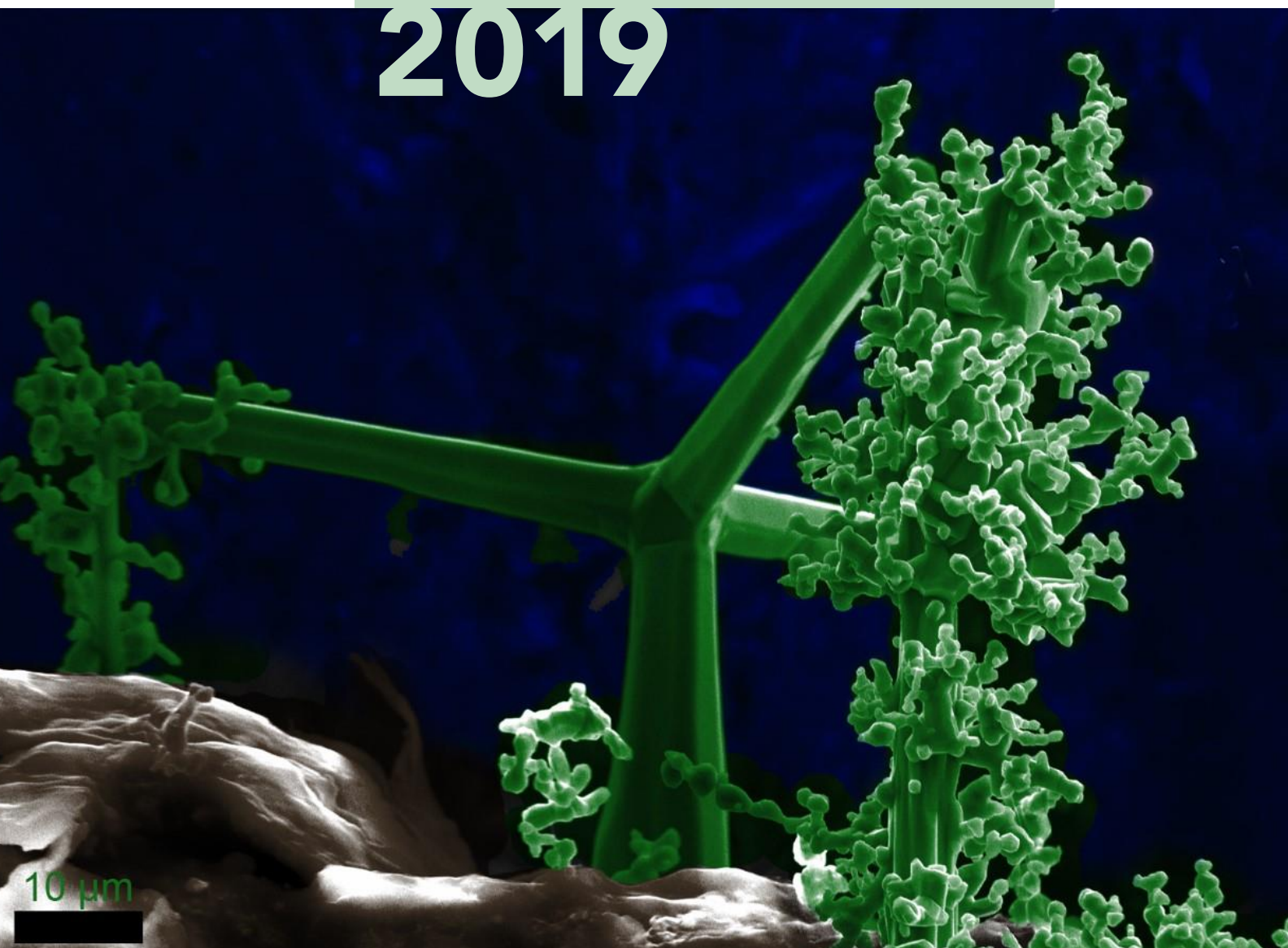


American Association for Aerosol Research

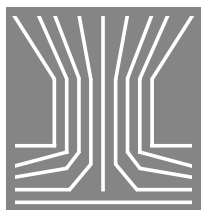
Our Investment in the Future of AAAR

# **ENDOWMENT FUND** **ANNUAL REPORT** **2019**



**Strong  $\text{ZnO}_x$  Bonds Connecting Growing Life on Planet X**

**Nathan Reed, Girish Sharma, Pratim Biswas**  
Washington University in St. Louis



## 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 2019, net assets grew from approximately \$412,000 to approximately \$596,000, including contributions to establish two new funds and investment gains as detailed in the table on the last page of this report. A total of about \$13,000 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 Lecturer via an honorarium and travel grant. Further details about the current funds and how they were used in 2019 can be found in the following pages.

We are excited to announce a new fund to support the Susanne V. Hering Award which honors Susanne for her technological innovations and her efforts in developing AAAR, and will recognize outstanding contributions to aerosol science that improve public health, the built environment, or the global ecosystem. If you would like to contribute to this award fund, please visit the AAAR Donation page at:

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

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

Sincerely yours,

Leah Williams, Endowment Committee Chair

**Background Image**  
**Nima Afshar-Mohajer**  
**Venkataramana K. Sidhaye**  
**Kirsten Koehler**  
Johns Hopkins Bloomberg  
School of Public Health  
**Lakshmana Dora**  
**Joseph Katz**  
Johns Hopkins University





## CURRENT ENDOWMENT FUNDS AND 2019 ACTIVITIES

The AAAR Endowment Fund is 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 in accord with the purpose of the fund and may have a finite lifetime. The AAAR Endowment Fund currently has **four** True Endowment Funds and **six** Quasi Endowment Funds.

Namsoon Eom  
Lund University

### 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 2019 Friedlander Lecture entitled “Airborne Ultrafine Particle and Nanomaterials: Adverse Effects on the Respiratory System and Beyond” was presented by **Flemming Cassee** of the Dutch National Institute for Public Health and the Environment. The Friedlander Memorial Fund was used to support their travel expenses.

**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 2019.*

**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 have decided that the Vice-President Elect will 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 will present their ideas during the Long-Range Planning Committee Meeting held each year at the Annual Conference starting in 2020.

“Simply said, winning the AS&T Outstanding Publication Award was thrilling for me. One writes a review paper to gain a complete and accurate overview of a particular field of science with two audiences in mind, one’s self and one’s international colleagues in that field. Nineteen years ago, upon completing my review, I knew I had been successful for my first audience, and with the award of the AS&T Outstanding Publication Award, I was completely gratified to know that I had been successful with my second audience as well.”

► **Christopher M. Sorensen**  
2019 AS&T Outstanding  
Publication Award



*The 2019 Benjamin Y.H. Liu Award recognises especially the young scientists who operate CLOUD during the experimental campaigns at CERN and the impact of their research on the understanding of new particle formation in the atmosphere. It is a great honour and pleasure for me to work with the CLOUD team and to receive this award on their behalf."*

► **Jasper Kirkby**  
2019 Liu 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 McMurtry** 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 2019 the AS&T Outstanding Publication Award was presented to **Christopher M. Sorensen** for their 2001 paper entitled "Light Scattering by Fractal Aggregates: A Review."

## 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 2019 Sheldon K. Friedlander Dissertation Award was presented to **Jing Li** for their dissertation work at Peking University, which focused on bioaerosols.

**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 2019 Thomas T. Mercer Joint Prize was presented to **Jack R. Harkema** of Michigan State University for their work in inhalable materials and pharmaceutical agents.

**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 2019 David Sinclair Award was presented to **Tiina Reponen** of the University of Cincinnati for their pioneering studies in biological aerosols which paved the road for development of several innovative technologies for generation and collection of bioaerosols.



**Ziying 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



Background Image  
Chethani Athukorala  
Hema Ravindran  
Clarkson University

**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 2019 Kenneth T. Whitby Award was presented to **Rajan Chakrabarty** of Washington University in St. Louis for their work in characterizing light absorbing carbonaceous aerosols and addressing long standing problems in aerosol physics.

**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 2019 Benjamin Y. H. Liu Award was awarded to **Jasper Kirkby** at CERN for leading the development of new approaches and orchestrating experimental investigations into atmospheric new particle and cloud formation in the CLOUD (Cosmics Leaving Outdoor Droplets) experiment at CERN.

**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 (JAASST). 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 2019.*

## FUND UNDER DEVELOPMENT

**Susanne V. Hering Award Fund:** The Awards Committee has been discussing with the Board the possibility of creating a **new award named after a prominent female scientist in aerosol science**. The Board received a formal proposal from the Awards Committee at the 2020 Winter Board Meeting with a recommendation to name this award after 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**. The Board approved the proposal, which also included a plan to fundraise to reach the goal of \$25,000 with the Board agreeing to match the funds up to the amount of a True Endowment. Fundraising has commenced.

*I feel both humbled and honored to have been selected to receive the 2019 Whitby Award. Receiving this award is a validation of the importance of innovatively addressing the grand challenges in aerosol science using a synergistic combination of instrument development, measurements, and modeling."*

► **Rajan Chakrabarty**  
2019 Whitby Award



## ENDOWMENT COMMITTEE



*I feel very honored to receive such a prestigious award and join all previous Friedlander Award recipients who have made great contributions to aerosol field. Winning this award recognizes the quality of my PhD dissertation work in bioaerosol field, encourages me to continue to excel as an early female scientist, brings me the opportunity of building connections with researchers across many other areas, and thus allows me to further broaden my research horizons."*

► **Jing Li**

2019 Friedlander  
Dissertation Award

The Endowment Committee oversees the management of the **AAAR Endowment Fund** 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

<b>Philip Hopke</b> 2016-2019 Chair	2016-2019	<b>Susanne Hering</b>	2018-2021
<b>David Ensor</b> 2015-2016 Chair	2015-2019	<b>Jim Smith</b>	2018-2021
<b>Melissa Lunden</b>	2017-2020	<b>Amy Sullivan</b> 2020-2022 Chair	2018-2022
<b>Leah Williams</b> 2019-2020 Chair	2018-2020	<b>Murray Johnston</b>	2019-2020
<b>Tyler Beck</b>	2018-2021	<b>Anthony Wexler</b>	2019-2022

**TiO<sub>2</sub> Volcano**  
**Sungyoon Jung**  
**Sukrant Dhawan**  
**Pratim Biswas**  
Washington University in St Louis



## 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 2020-2022 Incoming Committee Chair **Amy Sullivan** at [sullivan@atmos.colostate.edu](mailto:sullivan@atmos.colostate.edu)

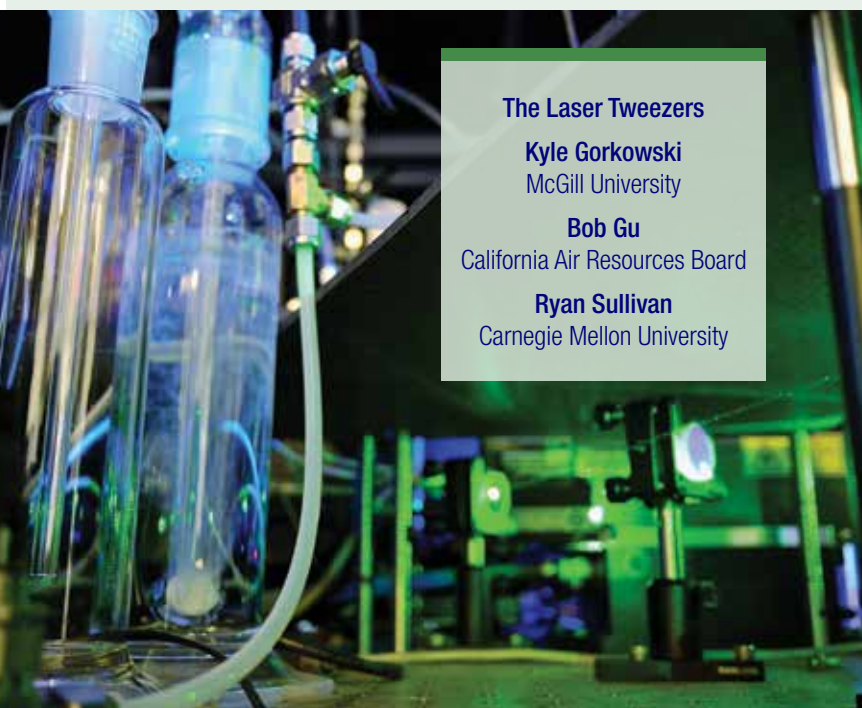
If you would like to help initiate any of these potential sub-funds or others of your choice, please let us know and, of course, we would welcome any contributions you wish to make. A new on-line donation portal system along with a description of all our funds can be found on the AAAR website at:

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

“

*I am deeply honored to have received the David Sinclair award. It increased the visibility of aerosol research in my institution. Within the AAAR, it was a recognition of the entire field of bioaerosol research.”*

► **Tiina Reponen**  
2019 Sinclair Award



### The Laser Tweezers

**Kyle Gorkowski**  
McGill University

**Bob Gu**  
California Air Resources Board

**Ryan Sullivan**  
Carnegie Mellon University

**TABLE 1.**

### Ideas for Potential New Endowment Funds to Support AAAR's Mission

CONCEPT	ANNUAL SPENDING	ENDOWED AMOUNT*
<b>Student Poster Prizes</b> ► To award 10 at \$200 each	\$ 2,000	\$ 50,000
<b>Early Career Travel Grant</b> ► To cover registration, lodging and some travel	\$ 2,000	\$ 50,000
<b>Early Career Event</b>	\$ 2,000	\$ 50,000
<b>Plenary Lectures (2)</b> ► To cover honorarium, lodging and some travel	\$ 4,000	\$ 100,000
<b>Student Travel Grants</b> ► To award 20 at \$500 each	\$ 10,000	\$ 250,000

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

## STATUS OF THE FUNDS IN 2019

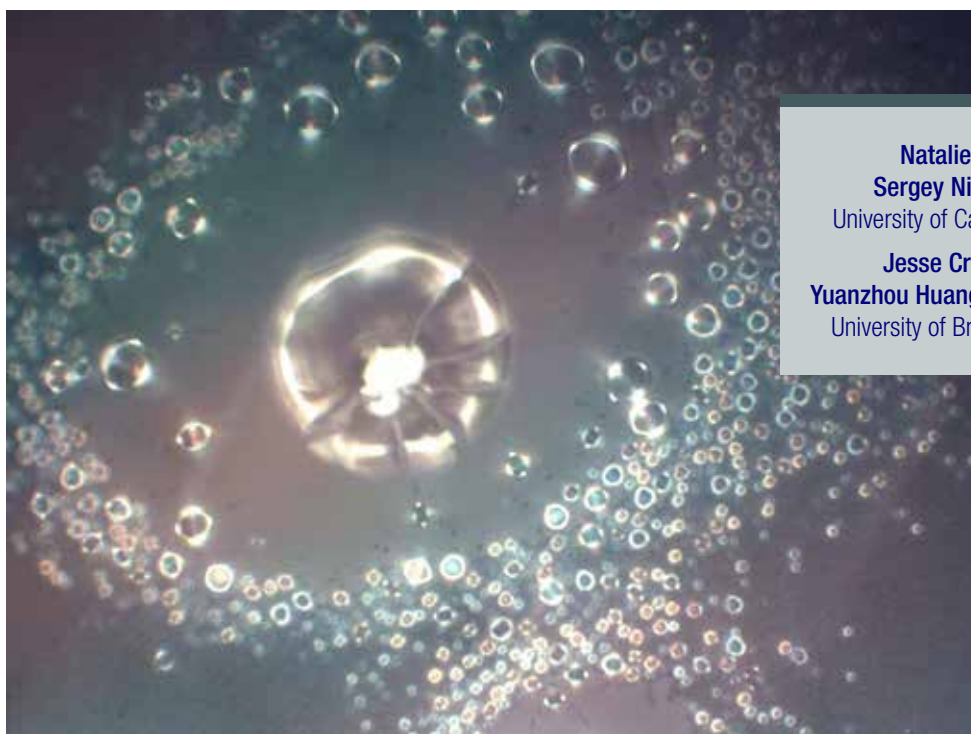
### AAAR Endowment Fund Financial Summary for 2019

Name of Endowment Fund	Net Assets Beginning of Year 1/1/2019	Contributions + Matching Funds	Total Disbursed	Net Return Gain/Loss + Interest - Fees	Net Assets End of Year 12/31/2019
<b>TRUE ENDOWMENT FUNDS</b> <i>(Permanently Restricted Corpus, Remainder Temporarily Restricted)</i>					
<b>Friedlander Memorial Fund</b> (\$50,000 Corpus)	\$ 97,820		\$ 3,138	\$ 17,688	\$ 115,508 <sup>3</sup>
<b>Fissan-Pui-TSI Award Fund</b> (\$65,000 Corpus)	\$ 96,908		\$ 201 <sup>2</sup>	\$ 17,854	\$ 114,561
<b>Presidents Fund</b> (\$50,000 Corpus)		\$ 50,000		\$ 4,337	\$ 54,337
<b>AS&amp;T Outstanding Publication Award Fund</b> (\$50,100 Corpus)		\$ 50,000	\$ 2,000	\$ 4,347	\$ 54,447 <sup>3</sup>
<b>Quasi Endowment Funds</b> <i>(Board Designated)</i>					
<b>Friedlander Dissertation Award Fund</b>	\$ 36,663		\$ 1,551	\$ 6,958	\$ 43,621 <sup>3</sup>
<b>Thomas T. Mercer Joint Prize Fund</b>	\$ 35,235	\$ 9,000 <sup>1</sup>	\$ 10,051	\$ 6,529	\$ 4,1764 <sup>3</sup>
<b>David Sinclair Award Fund</b>	\$ 35,259		\$ 1,551	\$ 6,347	\$ 41,606 <sup>3</sup>
<b>Kenneth T. Whitby Award Fund</b>	\$ 34,029		\$ 1,551	\$ 6,156	\$ 40,185 <sup>3</sup>
<b>Benjamin Y. H. Liu Award Fund</b>	\$ 38,604		\$ 1,551	\$ 6,926	\$ 45,530 <sup>3</sup>
<b>Fuchs Memorial Award Fund</b>	\$ 37,759		\$ 201 <sup>2</sup>	\$ 7,174	\$ 44,732

<sup>1</sup> Contribution went directly to the 2019 award.

<sup>2</sup> Disbursement was to reconcile for the 2018 award.

<sup>3</sup> These awards funds have not yet been reconciled for the 2019 disbursement.



Natalie Smith  
Sergey Nizkorodov  
University of California, Irvine  
Jesse Crescenzo  
Yuanzhou Huang Allan Bertram  
University of British Columbia



## DONOR ACKNOWLEDGEMENT

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

### Presidents Fund:

Cliff Davidson  
Jim Davis  
Sheryl Ehrman  
David Ensor  
Rick Flagan  
Susanne Hering  
Philip Hopke  
Pat Keady  
Sonia Kreidenweis  
William Nazaroff  
Spyros Pandis  
David Pui  
John Seinfeld  
David Shaw  
Chris Sorensen  
Barbara Turpin  
Anthony Wexler  
Ronald Wolff  
Barbara Wyslouzil  
Paul Ziemann

### AS&T Outstanding Publication Award Fund:

David Ensor  
Susanne Hering  
Philip Hopke  
Jingkun Jiang  
Murray Johnston  
Peter McMurry  
Hans Moosmüller  
Dan Murphy  
Kihong Park  
Mark Swihart  
Jian Wang  
Paul Ziemann  
Anonymous



*I wish to thank the AAAR and the ISAM for honoring me with the 2019 Thomas T. Mercer Joint Prize. This is especially meaningful for me considering the wealth of outstanding scientists in these aerosol research societies, and the mentorship I received from many past and present members. As a sports enthusiast, I am reminded of the adage, "Coaches are only as good as their players." This holds true for me as an academic mentor (coach). I am grateful to the cadre of world-wide students and colleagues from whom I have learned so much. This prestigious prize will be used to foster the training of new scientists in aerosol research that is related to inhalation/respiratory toxicology and the development of interventions to protect human/animal health from chronic diseases."*

► Jack R. Harkema

2019 Mercer Joint Award

