

## 2017 National Honorary Member Award

**Dr. Barbara Finlayson-Pitts**

**Department of Chemistry  
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Irvine, CA 92697-2025**



Dr. Barbara Finlayson-Pitts received her Honors B.Sc. degree in Chemistry in 1970 from Trent University, Peterborough, Ontario; M.S. (Chemistry) in 1971 from University of California, Riverside and Ph.D. (Chemistry) in 1973 from University of California, Riverside,

She was Professor of Chemistry, California State University, Fullerton in 1981-1994. In 1994, she became Professor of Chemistry at University of California, Irvine. In 2008, she formed and served as the Director of the AirUCI (Atmospheric Integrated Research at University of California, Irvine) Institute, the mission of which is to "address urgent challenges we face in air and water quality, human health, climate change, and green technology through the integration of research, education, and outreach".

Dr. Finlayson-Pitts' research area is in the elucidation at the molecular level of the chemistry and photochemistry of reactions of atmospheric interest, particularly those that form particles or take place on surfaces. Dr. Finlayson-Pitts' groundbreaking research over the last 30 years has established the molecular basis of reactions occurring in the atmosphere, particularly those at environmental interfaces and in airborne particles. Her research involves sophisticated laboratory experimental studies of complex systems under atmospherically relevant conditions, where new insights are supported and atmospheric implications quantified through close collaborations with field measurement scientists, theorists and atmospheric modelers. Her research has revealed exciting new fundamental processes important in the formation of photochemical air pollution. Dr. Finlayson-Pitts has published over 185 refereed research papers, given numerous invited research

lectures and education lectures. She is consistently in demand as an invited lecturer, conference presenter and as members of editorial boards, including *Science*, *International Reviews in Physical Chemistry*, *The Journal of Physical Chemistry*, *Journal of Environmental Science and Health*, *International Journal of Chemical Kinetics*, *Atmospheric Environment*, *Research on Chemical Intermediates*.

In recognition of her research achievements, Dr. Finlayson-Pitts has received numerous prestigious awards and honors, including American Chemical Society Award for Creative Advances in Environmental Science and Technology, 2004. She was elected to the American Academy of Arts & Sciences and the National Academy of Sciences in 2006. In the same year, she was named UCI Distinguished Professor. In 2008, she received the Tolman Medal of the Southern California Section of the American Chemical Society. In 2013, she was elected a Fellow of the Royal Society of Chemistry. In addition, she is a Fellow of the American Association for the Advancement of Science (1993), Japan Society for the Promotion of Science (1994), the American Geophysical Union (2002) and received UCI School of Physical Sciences Award for Outstanding Contributions to Undergraduate Education (1996-1997). From December 2014- December 2015, She co-Chaired the National Academy of Sciences Committee on the Future of Atmospheric Chemistry Research.

Prof. Finlayson-Pitts is perhaps best known to the broader scientific community for coauthoring two editions of the most influential book on atmospheric chemistry. "*Chemistry of the Upper and Lower Atmosphere: Theory, Experiments, and Applications*" by Finlayson-Pitts and James Pitts Jr., a 969-page magnum opus the most recent edition of which was published in 2000. This book is regarded as one of the most influential compendiums of atmospheric chemistry knowledge. It can be stated without exaggeration that every atmospheric chemist keeps this book close by and refers to it constantly. This book has taught the new generation of scientists and policy makers to appreciate a strong fundamental link between the molecular properties of atmospheric constituents and workings of the Earth atmosphere as a system.

Apart from garnering over \$6,000,000 grant for her own research, Dr. Finlayson-Pitts has organized major research initiatives at UCI. She has also directed several major multi-investigator projects, which have brought over \$17,000,000 in air pollution research funding to UCI.

In addition to its cutting edge research activities, AirUCI has conducted, under her leadership, significant outreach activities to the community in the form of "Community Day" showcases of the research activities, as well as an annual teacher training program, that consists of a two-week educational experience during which middle and high school teachers gain hands-on education and laboratory training in advanced subjects in atmospheric and environmental chemistry. The teacher program, which has trained 200 high-school and middle-school teachers since 2005, was highlighted as one of the top outreach efforts by 2008 National Academies' Chemical Sciences Roundtable (CSR) workshop "Strengthening High School Chemistry Education through Teacher Outreach Programs".

Prof. Finlayson-Pitts is not only a visionary scientist but also a passionate educator. She invests a lot of her energy on development of new educational material for undergraduate students and makes her work broadly available through a number of publications in educational journals. Prof. Finlayson-Pitts is a great mentor, and a strong proponent of the education and professional preparation of women at all levels. During her career, she has trained 30 graduate students, 38 postdoctoral researchers, and 30 undergraduate students, including more than 40 women. Her former trainees include faculty members, government officials, and a famous astronaut! She serves as the Faculty Advisor to the Iota Sigma Pi Calcium Chapter, and she is very active in this role. She has served on the Board of External Advisors to the Minority Opportunities in Research (MORE) Programs since 2004.

**Iota Sigma Pi is happy to recognize Dr. Barbara Finlayson-Pitts' outstanding research achievements and her exceptional contributions to her profession and to bestow on her this highest honor from the Society.**