James J. Marti, Ph.D.

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Experience

Senior Scientist and Outreach Coordinator, Minnesota Nano Center, University of Minnesota, Minneapolis. August 2008 to present.

Responsible for operations and expansion of the Nano Center's Nanomaterials and Bio-Nano laboratories. Specific tasks include

- outfitting and maintaining labs
- providing user support and training
- performing analytical services
- growing the lab user base by identifying and recruiting potential research partners
- developing educational programming on nanoscience for middle school to college levels

Professor, Nanoscience Technology Program, Dakota County Technical College, Rosemount, MN. August 2009 to May 2013.

- Developed and taught freshman and sophomore-level classes to students in an NSF-funded Nanoscience Technology program.
- Classes taught included Introduction to Nanotechnology, Nanoelectronics, Computer Simulation, Introduction to Manufacturing, Career Planning, and an Interdisciplinary Laboratory course.

Senior Manager and Director of Research, MSP Corporation, Shoreview, Minnesota. October 2005 – June 2008

- Directed R&D efforts for a diversified manufacturer of analytical instruments used in the semiconductor, pharmaceutical, and air monitoring industries.
- Planned and managed key product development projects.
- Managed cross-functional teams of staff and contract engineers.
- Worked with customers during product development and after delivery to ensure satisfaction.
- Administered federally-funded research and design projects.

Vice President, Research & Development and Senior Scientist, InnovaLight, Inc., St. Paul, Minnesota. January – September, 2005

- Directed R&D for a venture-funded, research phase company developing silicon nanoparticles for solid state lighting applications.
- Set technical milestones and development plans; communicated progress directly to board of directors.
- Supervised five lab scientists, contributed to nanoparticle lab research.
- Guided interactions with university faculty and scientific advisory board.

Director of Research and Senior Scientist, Aveka, Inc., Woodbury, Minnesota. June 1997 – January 2005

- Directed all phases of a material science lab developing particle-based products for a wide range of industries.
- Principle investigator on multiple concurrent research and development projects.
- Managed a full service analytical/particle characterization lab
- Awarded two patents and federal research funding.

Senior Scientist, United States Naval Research Laboratory, Washington, D.C. December 1995 – May 1997

- Conducted original scientific research on aerosol particles.
- Designed numerical simulation and computer modeling studies of complex particle systems.

Education

Doctor of Philosophy, Physics. University of Minnesota, Minneapolis
Master of Science, Atmospheric Science. University of Arizona, Tucson, AZ
Bachelor of Arts, Magna Cum Laude, Physics and Environmental Studies.
Macalester College, St. Paul, MN

Honors

NASA Fellowship for Global Climate Change Research
National Merit Scholar

Activities

- Member, IEEE
- Member, American Physical Society
- Past President and founding member, the Particle Society of Minnesota
- Editor, *EOS, Transactions of the American Geophysical Union*, 1996 – 2000
- Operating Committee member, NanoVox
- Board member, SELF International
- Founding President and board member, Union Park District Council

Publications--Scientific

Jalali, M., J. J. Marti, A.L. Kirchhoff, F. Lawrenz, and S.A. Campbell, "A Low-cost Hands-On Laboratory to Introduce Lithography Concepts." *IEEE Transactions on Education,* Vol 55 No. 4, p. 517, 2012.

Fitzgerald, J. W., J. J. Marti, W.A. Hoppel, G. M. Frick, and F. Gelbard, "One-dimensional Sectional Model to Simulate Multicomponent Aerosol Dynamics in the Marine Boundary Layer." *Journal of Geophysical Research*, Vol. 103, No. D13, p. 16103, 1998.

Marti, J., A. Jefferson, X. P. Cai, C. Richert, P. McMurry, and F. Eisele, "H_2SO_4 Vapor Pressure of Sulfuric Acid and Ammonium Sulfate Solutions." *Journal of Geophysical Research* Vol. 102, No. D3 , p. 3725, 1997.

Marti, J., R. Weber, P. McMurry, F. Eisele, D. Tanner, and A. Jefferson, "New Particle Formation at a Remote Continental Site." *Journal of Geophysical Research* Vol. 102, No. D5, p. 6331-6339, 1997.

Saros, M.T., Weber, R.J., Marti, J.J., McMurry, P.H. "Ultrafine aerosol measurement using a condensation nucleus counter with pulse height analysis." *Aerosol Science and Technology*, v 25, n 2, p 200-213, 1996.

Marti, J., R. Weber, M. Saros, J. Vasiliou, and P. McMurry, "Modification of the TSI 3025 Condensation Nucleus Counter for Pulse Height Analysis." *Aerosol Science and Technology* 25(2):214-218, 1996.

Marti, J. and K. Mauersberger, "Evidence for Nitric Acid Pentahydrate Formed under Stratospheric Conditions." *The Journal of Physical Chemistry* 98: 6897-6899, 1994.

Marti, J. and K. Mauersberger, "Laboratory Simulations of PSC Particle Formation." *Geophysical Research Letters* 20 (5):359362, 1993.

Marti, J. and K. Mauersberger, "A Survey and New Measurements of Ice Vapor Pressure at Temperatures between 170 and 250K." *Geophysical Research Letters* 20 (5):363366, 1993.

Marti, J., D. Hanson and K. Mauersberger, "HCl Dissolved in Solid Mixtures of Nitric Acid and Ice: Implications for the Polar Stratosphere." *Geophysical Research Letters* 18 (10):18611864, 1991.

Marti, J., "Diurnal Variation in the Undisturbed Continental Aerosol." *Atmospheric Research* 25:351362, 1990.

Publications—Reference

The Gale Encyclopedia of Science (Editors: Kimberley McGrath, Stacey Blachford).
I wrote articles on the following atmospheric science topics to the 1st Edition:

- *Atmospheric Pressure*
- *Atmospheric Temperature*
- *El Nino and La Nina*
- *Microclimate*
- *Monsoon*
- *Thunderstorm*
- *Tornado*
- *Tropical Cyclone*

Patents

1. United States Patent #6,139,613, "Multilayer Pigments and Their Manufacture", William A. Hendrickson and James J. Marti, Oct. 31, 2000.
2. United States Patent #6,413,548, "Particulate Encapsulation of Liquid Beads", Monica Hamer, James J. Marti. and William A. Hendrickson, July 2, 2002.