

# Biographical Sketch

## **Brian D. Swanson**

Director of Research  
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## **Professional Preparation**

University of Washington, Seattle, WA. Atmospheric Geophysics 1993–1996  
University of Washington, Seattle, WA. Physics Ph.D. 1992  
University of Washington, Seattle, WA. Physics M.S. 1985  
University of Washington, Seattle, WA. Physics B.S. 1981  
University of Washington, Seattle, WA. Mathematics B.A. 1981

## **Appointments**

Director of Research (2007 – present) Laucks Foundation Inc., Seattle Wa.  
Emeritus Research Associate Professor (2007 – present) ESS Dept., U. of Wash., Seattle WA.  
Research Associate Professor (2004 – 2007) ESS Dept., U. of Washington., Seattle, WA.  
Research Assistant Professor (1997 – 2004) Geophysics/ESS Dept., U. of Wash., Seattle, WA.  
Research Associate (1993–1996) Geophysics/ESS Dept., U. of Washington, Seattle, WA.

## **10 Recent Publications**

“How well does water activity determine homogeneous ice nucleation temperature in aqueous sulfuric acid and ammonium sulfate droplets?”, B. D. Swanson, *J. Atmos. Sci.* 66 741-754 (2009).

“High-resolution ice nucleation spectra of sea-ice bacteria: Implications for cloud formation and life in frozen environments”, K. Junge and B. D. Swanson, *Biogeosciences* 5 865-873 (2008).

“Surface-enhanced Raman spectroscopy of soft-landed polyatomic ions and molecules”, M. Volny, A. Sengupta, C.B. Wilson, B.D. Swanson, E.J. Davis and F. Turecek *Anal. Chem.* 79 4543-4551 (2007).

“Experimental investigation of the homogeneous freezing of aqueous ammonium sulfate droplets”, B. H. Larson and B. D. Swanson, *J. Phys. Chem. A* 110 1907 (2006).

“Evidence for bacteria incorporating leucine into protein down to -196C in saline ice”, Karen Junge, Hajo Eicken, Brian D. Swanson, Jody W. Deming, *Cryobiology* 52 417-429 (2006)

“Comparison of psychroactive Arctic marine bacteria and common mesophylic bacteria using surface-enhanced Raman spectroscopy”, M. L. Laucks, A. Sengupta, K. Junge, E. James Davis, and B. D. Swanson, *Applied Spectroscopy* 59 1222 (2005).

“Comment on evidence for surface-initiated homogeneous nucleation”, J.E. Kay, V.

Tsemekhman, B. Larson, M. Baker and B. Swanson, *Atmos. Chem. Phys.* 3 3361-66 (2003).

“Initial stages in the morphological evolution of vapor grown ice crystals: a laboratory investigation”, N. J. Bacon, M. B. Baker and B. D. Swanson, *Q. J. Roy. Meteor. Soc.* 129 1903 (2003).

“New instrument for studies of homogeneous and heterogeneous ice nucleation in free-falling supercooled water droplets”, S. E. Wood, M. B. Baker and B. D. Swanson, *Rev. Sci. Inst.* 73 2988 (2002).

“Non-isothermal droplet evaporation and condensation in the near-continuum regime”, X. Qu, E. J. Davis and B. D. Swanson, *J. Aerosol Sci.* 32, 1315-1339 (2001).

## US Patents

“Microminiature Illuminator for Administering Photodynamic Therapy” Brian D. Swanson and James C. Chen, issued November 1996.

## Synergistic Activities

- Developed low-temperature electrodynamic balance, freezing-tube and spectroscopic confocal microscopy techniques to study ice nucleation, ice growth and sublimation rates, ice particle habit evolution, light scattering phase functions, and near-surface pH profiles.
- Directed graduate student Ph.D., M.S. and undergraduate projects in our lab. Assisted in the development of laboratory experiments for undergraduate courses.
- Developed device to deliver cancer therapy. US patent: “Microminiature Illuminator for Administering Photodynamic Therapy”, B. D. Swanson and J. C. Chen, Nov. 5, 1996.
- Maintain educational web pages describing our research at <http://www.laucksfoundation.org>
- Lead tours of High School and University students through our research facility. Host extended lab visits by students and scientists for collaboration and technology transfer.

## Collaborators and Other Affiliations

- Collaborators: C.L. Aardahl (PNNL, Hanford), N.J. Bacon (Nion Corp., Kirkland WA), M.B. Baker (U. Wash.), E.J. Davis (U. Wash.), J. Deming (U. Wash.), T. Huthwelker (ETH, Zurich), K. Junge (U. Wash.), D. Lamb (Penn. State), B. Larson (U. Wash.), M. Laucks (U. Wash.), T. Peter (ETH, Zurich), X. Qu (Microsoft, Bellevue WA), G. Schweiger (Ruhr U., Bochum), R. Vehring (Inhale, Palo Alto CA), B. Wearn (U. Wash.), S. E. Wood (U. Wash.).
- Graduate and Postdoctoral Supervisors: L.B. Sorensen (U. Wash.), M.B. Baker (U. Wash.) and E.J. Davis (U. Wash.).
- Thesis Advisor/Supervisor and Postdoctoral-Scholar Sponsor: N.J. Bacon (Nion Corp. Kirkland WA), K. Junge (U. Wash.), B. Larson (U. Wash.), X. Qu (Microsoft, B. Wearn (U. Wash.), Bellevue WA), C.B. Wilson (U. Wash.), S.E. Wood (U. Wash.).