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Biophysicist in Profile



Joe Falke

Joe Falke, of the University of Colorado, officially took over as President of the Biophysical Society at the Annual Business Meeting, which was held in Baltimore on March 6. Falke is known for his uncommon combination of a soft-spoken, diplomatic outward demeanor coupled with a passionate, razor-sharp, questioning mind.

He has been an active member of the Society for years, having joined in 1985 as a graduate student and subsequently serving in many capacities including Program Chair for the 2001 Annual Meeting in Boston. The Annual Meeting has always played a special role in his life. "I have always found attending scientific meetings one of the most invigorating aspects of science," he explains, "and the Biophysical Society meetings are always fantastic. They provide a rare opportunity to

be surrounded by an incredibly smart, passionate group of people interested in similar questions. I always leave feeling energized."

Born in 1959, in Dayton, Ohio, Joseph Falke has long possessed a passion for exploring the things around him. Describing himself as quite shy when young, Falke had a special appreciation for the biology and nature around him. "I loved to be outdoors exploring forests, streams, and ponds," often on long walks with his grand-

parents. His father, Lee, was a district attorney in the Dayton area, and his mother, Peggy, an art and drawing professor. Falke was one of three siblings. A younger sister, Mary, is now a legal secretary, and a younger brother Lee, who until his passing from cancer in 1990, studied ion channel electrophysiology with Stan Misler at Washington University and designed a new patch clamp system. His brother Lee used to join him at Biophysical Society meetings. "It was a wonderful opportunity to share these experiences and interests with my brother, who was a very special person on many levels," remembers Falke.

When Falke was in grade school, he convinced his parents to enroll him in summer classes at the local museum of natural history where he studied field biology and astronomy. These experiences strengthened his interest in science and led him to Earlham College, a small liberal arts school in Indiana with strong science programs. His first exposure to experimental research was provided by studies of enzyme activities and mechanisms carried out with Dale Hoyt, his mentor at Earlham, and with David Bing, his mentor during a summer internship at Harvard. These research projects crystallized Falke's interest in understanding biology on a molecular and physical level.

As a graduate student at Caltech, Falke carried out ³⁵Cl NMR studies of the mechanism of chloride transport by the

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red cell anion transporter band 3. His mentor Sunney Chan provided the support, encouragement and drive Falke needed and respected. "Sunney was a fantastic mentor—a very smart man who provided excellent input, yet at the same time encouraged his students to become independent thinkers," says Falke. Scientific discussions with the strong student colleagues at Caltech, many of whom are now faculty members at leading uni-

versities, further contributed to Falke's education. Falke also took courses with Henry Lester at Caltech, who taught him how to patch clamp ion channels for single channel currents and broadened his interests in membrane proteins.

Taking his love of research and membrane proteins with him, Falke moved to UC Berkeley where he was a postdoctoral fellow with Dan Koshland. At the time, Koshland was Editor-in-Chief of *Science*. Koshland remembers that Falke "had a very original mind and the willingness to pursue a good problem with hard work." Falke's research at Berkeley focused on bacterial chemotaxis receptors, which remains a focus in Falke's own lab today. "Dan ran a very high-powered lab and gave me direct exposure to the scientific life in-the-fast-lane," explains Falke, "which was a learning experience that has proved invaluable in my independent career."

Falke's fast lane life started soon after. "He has a very solid background in physical chemistry and he uses it to tackle new subjects that need that background," says Koshland. This talent was used for their joint project, which they presented at the Society's Annual Meeting in 1986. Working closely, the two developed site-directed cysteine chemistry and spectroscopy as a tool to probe protein structure and dynamics. "He (Falke) has a steel-trap mind and awesome intuition about the personalities of proteins," explains Chris Miller, currently studying ion channel structure-function at Brandeis, who witnessed Falke's work at that time. "He'd developed a really useful strategy for analyzing membrane proteins by disulfide cross linking, and he was just beginning to launch his independent career."

After completing his postdoc, Falke moved to Boulder, Colorado, where he became an Assistant Professor of Chemistry and Biochemistry. He remains at Boulder, where today he is Professor of Chemistry and Biochemistry and Director of the Molecular Biophysics



Falke stops to enjoy the beautiful scenery during a hike.

Program. "In my latter capacity I run a graduate training program sponsored by NIH and the University, which offers interdisciplinary training in biophysics, provides graduate traineeships to wonderfully talented students, encourages diversity in science, and bestows a Graduate Certificate of Biophysics to participating students," he explains. He also runs his own lab, which is focusing on two main topics: the molecular mechanisms of transmembrane receptor signaling and kinase regulation in the prokaryotic chemotaxis path-

Scientific research is not his only interest. Nature and the outdoors continue to play significant roles in his life. Together with his wife, Michelle, a rare books librarian at the University of Colorado, Falke spends his free time hiking and traveling. Colorado affords them the opportunity to hike and ski in the mountains often. Unfortunately, the time he has spent living in big cities has decreased his ability to enjoy astronomy, but once in a while he still takes his telescope to a dark location to see the celestial sights.

Falke expects changes in federal funding to be an important focus during his term as Society President. Since funding for Biophysics has become tight, he hopes to assist the Public Affairs Committee in their efforts to deal with these concerns, and to help the Society develop new ways to assist its members during difficult times. However, as someone who has benefited throughout his career from the range of scientific programs offered by the Biophysical Society, Falke realizes first and foremost the importance of maintaining the Society's main focus: to serve its members by offering top-notch meetings, publications and scientific stimulation. Falke feels strongly that the

Society is vital and thriving, thus his main goal is to help the Society stay on its current positive trajectory,

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way, and molecular mechanisms of membrane targeting and signaling protein regulation in the eukaryotic chemotaxis pathway. "Both of these projects are investigating fundamental regulatory events that occur at the plasma membrane," he continues, "a critically important regulatory region where many cellular signaling pathways are initiated and modulated."

enhancing its impact on members, and reaching out to attract new members. He also knows the importance of listening to suggestion about ways to further improve the Society and how it runs, and welcomes new ideas from the membership. The Society will experience the passion and grace with which he will lead.