ASPB Pioneer Member

Petra Fromme

Dr. Petra Fromme is a Regents Professor, the Paul V. Galvin Professor of Molecular Sciences at Arizona State University (ASU), and the Director of the Center for Applied Structural Discovery at the Biodesign Institute. An internationally recognized biochemist, she is celebrated for her groundbreaking research, her technological innovations, and her boundless dedication to the scientific community.

Dr. Fromme dedicated her career to unraveling the structure-to-function relationships of membrane proteins, specifically those involved in bio-energy conversion. She is a foremost pioneer of serial femtosecond nanocrystallography, having been among the first scientists to successfully utilize high-intensity X-ray Free Electron Lasers (XFEL) to analyze protein structures. By capturing molecular data in femtoseconds—before the powerful X-ray pulses can destroy the delicate samples—her work has fundamentally revolutionized how crystallographic data is collected.

Through this cutting-edge XFEL technology, Dr. Fromme has established the structure-property relationships of some of the most crucial biological systems on Earth, including ATP synthase, Photosystem I, and Photosystem II. Her discoveries in plant biology and photosynthesis are paving the way for artificial, bio-inspired renewable energy sources, while her parallel work on disease-linked enzymes accelerates structure-based drug design.

Colleagues frequently note Dr. Fromme's extraordinary drive and work ethic. She maintains a highly active academic presence, having taught every single semester (including summers) since 2019. Her passion for education extends well beyond the university lecture hall; she is deeply involved in community outreach and actively mentors local high school students in her research lab, ensuring the next generation of scientists has hands-on support.

Dr. Fromme earned her undergraduate and master's degrees in biochemistry from the Free University of Berlin, and her Ph.D. in chemistry from the Technical University of Berlin. Her prolific scientific output includes over 200 articles and a published textbook. Beyond her laboratory and classroom, she has actively shaped the broader scientific community by serving as a president, director, and dedicated committee member for numerous professional societies.