

# PURDUE MECHANICAL ENGINEERING



## *The Hawkins Memorial Lecture*

**Dr. John Bischof**

*Departments of Mechanical and Biomedical Engineering  
University of Minnesota*

**Lecture: Thursday, October 28, 2021**

**3:30 p.m. – Burton Morgan Center 121**

**Poster Show & Reception: Thursday, October 28, 2021**

**2:00 p.m. – 3:00 p.m. — Gatewood Atrium in ME**

## **Bioheat Transfer and Biopreservation**

### **Abstract:**

This talk will introduce a new National Science Foundation Engineering Research Center (ERC) for Advanced Technologies for the Preservation of Biological Systems (ATP-Bio) that aims to “stop biological time” and radically extend the ability to bank and transport cells, aquatic embryos, tissue, skin, whole organs, microphysiological systems (“organs-on-a-chip”), and even whole organisms through a team approach to build advanced biopreservation technologies. New capabilities in cell, tissue, organ, and organismal cryopreservation (including zebrafish and drosophila embryos) will be presented. We also aim to build a more robust and diverse STEM workforce, especially in the growing number of fields needing biopreservation technologies, promoting and delivering equitable and inclusive STEM education from middle school to graduate school and beyond. The Center has numerous partnerships with for-profit and non-profit organizations aim to commercialize ATP-Bio technology, drive new biopreservation research, and contribute to the workforce development and culture of inclusion goals of the Center. Unique among ERCs, ATP-Bio also focuses extensively on ethical and public policy considerations around biopreservation so that ATP-Bio’s technology can be effectively translated to public benefit. In summary, this talk demonstrates the growing opportunities for societal impact through use of innovations that improve biopreservation.

### **Biography:**

Dr. Bischof works in the area of thermal bioengineering with a focus on biopreservation, thermal therapy, and nanomedicine. His awards include the ASME Van Mow Medal and Fellowships in societies including Cryobiology, JSPS, ASME and AIMBE. He has served as the President of the Society for Cryobiology and Chair of the Bioengineering Division of the ASME. Bischof obtained a B.S. in Bioengineering from U.C. Berkeley (UCB) in 1987, an M.S. from UCB and U.C. San Francisco in 1989, and a Ph.D. in Mechanical Engineering from UCB in 1992. After a Post-doctoral Fellowship at Harvard in the Center for Engineering in Medicine, he joined the faculty of the University of Minnesota in 1993. Bischof is now a Distinguished McKnight University Professor and Kuhrmeyer Chair in the Departments of Mechanical and Biomedical Engineering, the Medtronic-Bakken Endowed Chair and Director of the Institute for Engineering in Medicine at the University of Minnesota, and Director of the new NSF Engineering Research Center ATP-Bio.

# Distinguished Seminar Series