

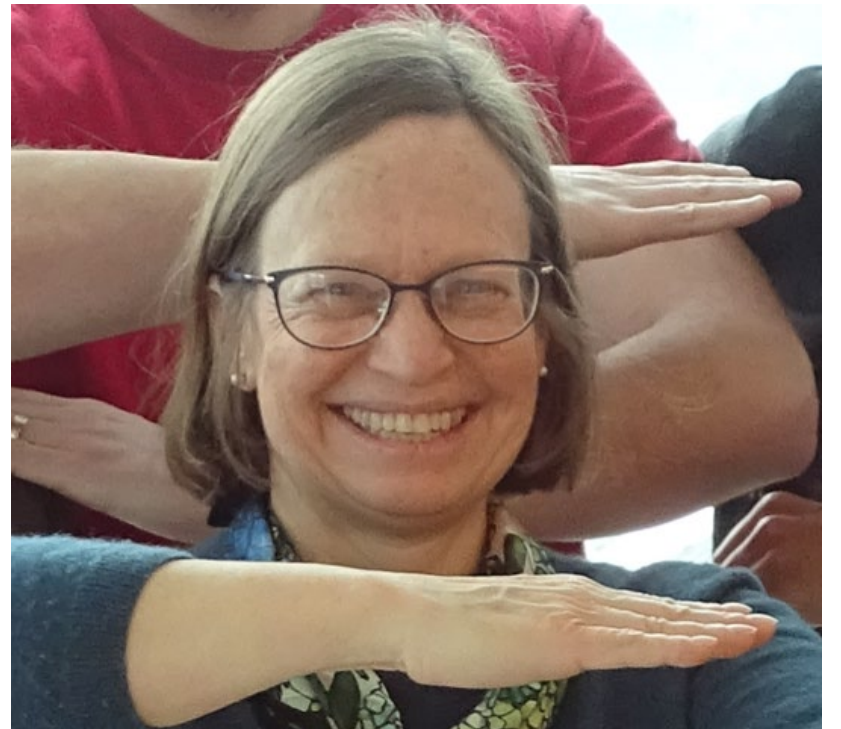
Thursday, February 23rd, 2023

Refreshments at 3:15pm in PSF 186
Colloquium from 3:30 PM – 4:30 PM in PSF 101

Better Beams for Science and Society

Professor Ritchie Patterson

Cornell University



Abstract:

Electron beams give us particle colliders, x-ray sources, electron microscopes and automobile tires. As particle accelerator know-how improves, these tools become more powerful and new applications become available. Accelerator advancement itself depends on gaining new understanding of physical phenomena such as photoemission, superconductivity, and the dynamics of non-neutral plasmas. Recently, new understanding has been possible thanks to an interdisciplinary approach that combines expertise in beams with that in materials, condensed matter physics, and surface chemistry. This talk will look at some of the progress, and at the future of particle accelerator-based tools and applications, which will affect every one of us.

Biography:

Patterson is the Helen T. Edwards Professor of Physics at Cornell University, where she does research in the field of elementary particle physics using the Large Hadron Collider. In 2016, she combined her appreciation for particle accelerators and for the power of teamwork to found the Center for Bright Beams (CBB), an NSF Science and Technology Center involving 8 universities and 3 national laboratories. The center is notable for its inclusive environment, in which all voices are encouraged and heard, and its highly interactive approach to interdisciplinary scientific research. Patterson obtained her PhD at the University of Chicago (1990), and went to Cornell University as a post-doc, and joined the Cornell faculty in 1994. She was an NSF National Young Investigator (1994-99) and a Sloan Foundation Fellow (1994-96) and is a Fellow of the American Physics Society (elected 2003). She won Cornell's Provost Award for Distinguished Scholarship (2005) and is a Fellow of the American Association for the Advancement of Science (elected 2019). She served as Chair of the Physics Department (2009-11), directed the Cornell Laboratory for Accelerator-based Sciences and Education (CLASSE) (2012-20), and has served on numerous panels and committees, including the current National Academies panel, EPP-2024, which is looking at the "Progress and Promise" of elementary particle physics.

Host: Profs. Siddharth Karkare and Robert Kaindl

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