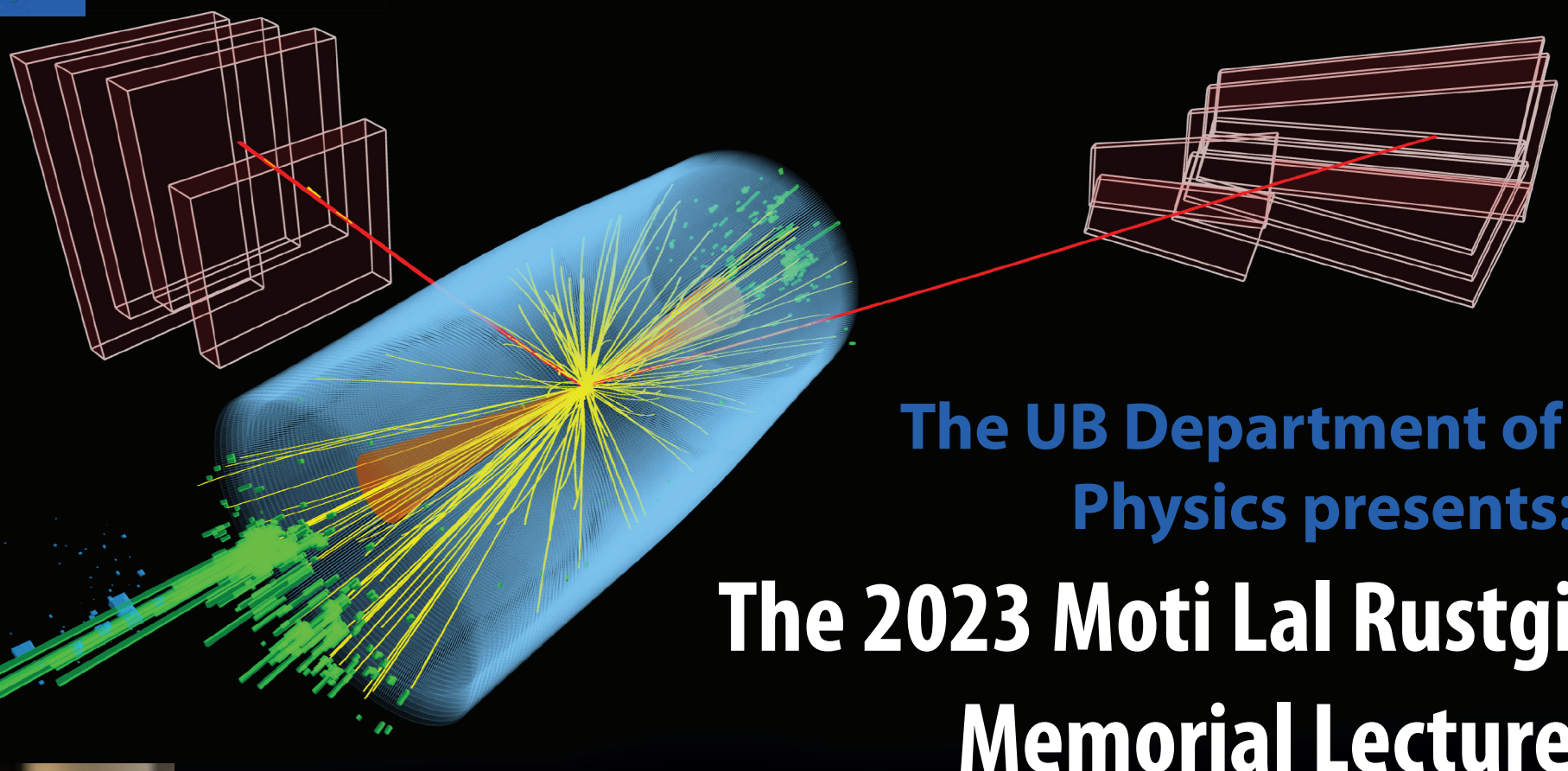
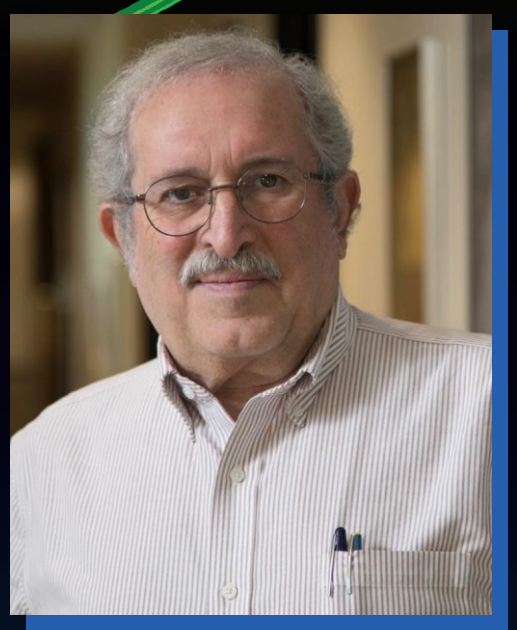
University at Buffalo
Department of Physics



The UB Department of Physics presents:

The 2023 Moti Lal Rustgi Memorial Lecture

Friday, April 21, 2023 • 5:00 PM
NSC 201 • UB North Campus
This lecture is free and open to the public.



Michael E. Peskin

Professor of Particle Physics & Astrophysics
(SLAC, Stanford University)

About the speaker:

Michael E. Peskin received his Ph.D. from Cornell University in 1978, studying with Kenneth Wilson. After postdoctoral appointments at Harvard, CEN Sacaly, and Cornell, he joined the staff of the SLAC National Accelerator Laboratory at Stanford University, where he is now a Professor of Particle Physics and Astrophysics. His main research interests in theoretical particle physics are:

- consequences of the "Standard Model of particle physics"
- precision study of the heaviest known elementary particles - the W and Z bosons, the top quark, and the Higgs boson - to search for clues to new fundamental interactions beyond the Standard Model
- models of such new interactions, especially models with composite or strongly interacting Higgs bosons
- models for the particle that composes the dark matter of the universe.

He is the author of a leading textbook in this area, "An Introduction to Quantum Field Theory", with Daniel Schroeder, and has recently published "Concepts of Elementary Particle Physics". For further information about his research activities, interests, and related subjects, please visit ***www.slac.stanford.edu/~mpeskin.***

Higgs Boson: The "god particle" Takes a Human Face

It has now been 10 years since the discovery of the Higgs Boson at the CERN Large Hadron Collider, a giant particle accelerator near Geneva, Switzerland. The Higgs Boson has been called the "god particle" because of its central importance in the fundamental forces of nature. Among other roles, it was expected to be the source of mass for all known elementary particles. Since its discovery, particle physicists have been able to measure many properties of the Higgs Boson and check whether this particle truly is playing the part that we expected. One might ask more generally, can we really know anything about forces and interactions that happen, as these do, at distances a thousand times smaller than the nucleus of an atom? Remarkably, through the exploration of huge data sets generated by complex and powerful machines, we can learn what happens at distances even so far removed from the human scale. In this lecture, I will explain what we have learned about the Higgs Boson and how we have learned it. I will also discuss further mysteries of the Higgs Boson that we still struggle to solve.