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PHYSICS and ASTRONOMY

presents

the 6th David Rittenhouse Lecture in Astrophysics

Saul Perlmutter

Supernova Cosmology Project
Lawrence Berkeley National Laboratory

Dr. Saul Perlmutter is a Senior Scientist at the E. O. Lawrence Berkeley National Laboratory. He received his Ph.D. in Physics from Berkeley in 1986 and his AB from Harvard in 1981. His research work is at the intersection of the fields of physics, astrophysics, and cosmology, and he has published and lectured extensively for both academic and popular audiences.

Dr. Perlmutter is an elected Fellow of the American Physical Society, and he received the Henri Chretien Award from the American Astronomical Society. He is the leader of the Supernova Cosmology Project, an international collaboration with research teams from seven countries. The measurements indicating an accelerating universe from the Supernova Cosmology Project and the High-Z Supernova Search were recognized by the American Association for the Advancement of Science, as Science Magazine's "1998 Breakthrough of the Year." This work has been featured in PBS and BBC cosmology documentaries.

Abstract: Will the universe last forever, or someday will it come to an end? Surprisingly, this apparently philosophical question can be answered empirically. The light from the cataclysmic explosions of distant stars – supernovae – provides us with natural milemarkers across the vast expanses of space, and we can use these milemarkers to track the past expansion of the universe and extrapolate its fate. The most recent results are unsettling, at least to physicists. It appears that the universe will last forever, and that its expansion will speed up indefinitely. If so, some fundamental physics concepts may need to be revised, and some mysterious "dark energy" – perhaps Einstein's "cosmological constant" – may pervade the universe.

This is the first decade in which we can begin to answer such cosmological questions with a variety of measurement techniques. By developing new detector systems and larger telescopes both on earth and in space we are opening a new chapter of striking discoveries.

Supernovas, Dark Energy, and the Accelerating Universe -- What Next?

Wednesday, November 7th, 2001
4:00PM
David Rittenhouse Laboratory, RmA1
209 South 33rd Street

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