APS COLLOQUIUM SERIES

Speaker: Michael S. Turner
The University of Chicago and Fermilab

Michael S. Turner is the Bruce V. and Diana M. Rauner Distinguished Service Professor and Chair of the Department of Astronomy & Astrophysics at The University of Chicago. His research focuses on the earliest moments of the Universe. He has made important contributions to inflationary Universe theory, understanding of dark matter, and the origin of structure. He has been honored with several prizes, including the Helen B. Warner Prize of the American Astronomical Society. Turner's transparencies were featured in a one-man show at the CfPA Gallery.

Title: Cosmology: From Quantum Fluctuations to Expanding Universe

Today the Universe consists of galaxies moving away from one another in a pattern of motion that indicates a big-bang beginning. We can trace the history of the Universe back to the hot quark soup that existed a fraction of a second after the beginning. Armed with bold ideas that are rooted in the deep connections between the inner space of elementary particles and the outer space of the cosmos, we are trying to extend our understanding back to an even earlier time when galaxies existed only as quantum fluctuations in the fuzzy subatomic world. If these ideas are correct, then our big bang was a burst of expansion called inflation, galaxies are held together by the gravity of elementary particles left over from the big bang, and the expansion of the Universe is speeding up because of an odd form of energy that pervades the Universe. A flood of observations made possible by technological advances are putting these ideas to the test, and in the process have presented us with new puzzles, like the fact that the Universe is speeding up, not slowing down! These are very exciting times in cosmology.

DATE: Wednesday, August 4, 1999

TIME: 4:15 p.m.

LOCATION: 402 Auditorium