



Phi Beta Kappa Lecture

“Quantum Origins of the Classical”



A Public Lecture by:

Dr. Wojciech Zurek

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Phi Beta Kappa Visiting Scholar

ABSTRACT: Quantum mechanics is weird. It allows objects to be simultaneously here and there ("quantum superpositions"), and mandates strange, unusually strong correlations ("quantum entanglement"). I will discuss these manifestations of the quantum principles. They are by now well established experimentally. Indeed, quantum weirdness may be soon put to work (e.g., in quantum computing). But our familiar Universe -- even if, on the surface, it may appear to follow laws different from these observed by its quantum ingredients -- may well be "quantum to the core."

TUESDAY(!)

February 15, 2005

Coffee: 3:30 p.m. in 201 Brace
Lecture: 4:00 p.m. in 211 Brace

THE SPEAKER: Wojciech Zurek was educated in Krakow and Austin, Texas; spent two years at Caltech as a Tolman Fellow; and began his affiliation with the Los Alamos National Laboratory in 1984 as a J. Robert Oppenheimer Fellow. During 1991-96 he was leader of the Theoretical Astrophysics Group at Los Alamos and, in 1996, was appointed a Laboratory Fellow in the Theory Division. A foreign associate of the Cosmology Program of the Canadian Institute of Advanced Research, Dr. Zurek also served as a member of the external faculty of the Santa Fe Institute. He has lectured at numerous institutes and universities both in the U.S. and abroad, and has been a visiting professor at the University of California, Santa Barbara, where he has recently co-organized and directed the Quantum Coherence and Decoherence as well as the Quantum Computing and Chaos Programs at UCSB's Institute for Theoretical Physics.

His research interests include decoherence, physics of quantum and classical information, foundations of statistical and of quantum physics, and astrophysics. Among the books he has edited or co-edited are *Physical Origins of Time Asymmetry*, *Complexity*, *Entropy*, and *the Physics of Information*, and *Quantum Theory and Measurement*.

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