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Scientific Evening Talk
Tuesday, May 21st, 2013, 18.30 Uhr

Magnus-Haus Berlin, Am Kupfergraben 7, 10117 Berlin

Quantum Biology - old roots and new shoots

Prof. Dr. K. Birgitta Whaley
Berkeley Quantum Information and Computation Center, University of California, Berkeley (USA)

The discussion will be chaired by
Prof. Dr. Wolfgang Eberhardt
Scientific Director Magnus-Haus

'Nachsitzung' with food and drinks in the 'Remise', sponsored by the WE-Heraeus-Foundation
Please register online

Birgitta Whaley was born in England and moved to the US following an undergraduate degree in Oxford University. She received her Ph. D. from the University of Chicago in 1984 and was appointed to the faculty at the University of Berkeley, California, in 1986, where she is now Professor of Chemistry, Director of the Berkeley Quantum Information and Computation Center, and senior faculty scientist at Lawrence Berkeley National Laboratory. Fellow of the American Physical Society and former chair of the APS Division of Chemical Physics, her honors include Kennedy and Sloan Foundation fellowships, an Alexander von Humboldt research award, a Miller Institute for Basic Research in Science Professorship at Berkeley, and senior Fellow at the Wissenschaftskolleg in Berlin (2012-2013).

Abstract: Recent years have seen mounting evidence for the existence of dynamical phenomena in biological systems that involve coherent quantum motion, requiring us to revise the long standing view of quantum effects in biology being restricted to understanding of molecular energetics, stability and kinetics. This lecture will review these phenomena, focusing primarily on the occurrence of quantum coherence electronic dynamics in the highly efficient light-harvesting step of photosynthesis. I shall present theoretical studies that analyze the nature of this coherence and its relation to the non-local quantum correlations characteristic of quantum entanglement, as well as implications for possible relevance of quantum information processing to natural systems. I shall also address the question of whether and how such quantum coherence might result in a biological advantage.