



## LECTURE

# Understanding Quantum Mechanics: The Rehabilitation of Aristotle in Modern Physics

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Recent advances in modern science, particularly those occurring in the areas of quantum physics, cosmology, and the study of complex adaptive systems in nature, have begun to inspire an increasingly resonant shift in the conventional Western understanding of the natural world. The central pillars of the worldview inherited from the Enlightenment—Cartesian dualism and mechanistic materialism—have begun to crack under the weight of modern science. Quantum physics in particular has proven impossible to support with these pillars, and it was Werner Heisenberg who first suggested that the proper interpretation of quantum mechanics required a rehabilitation of Aristotelian *entelecheia*—the notion that a thing's potentiality is a material constituent of its reality and not merely a figment of human understanding—that potentiality and actuality are both species of reality. Today, the most coherent interpretations of quantum mechanics have proven to be those that have committed either implicitly or explicitly to this Aristotelian notion. Eminent quantum theorist Roland Omnès has extended this Aristotelian rehabilitation even further, suggesting that the logical structure by which potentia are related in quantum mechanics is likewise a 'real' feature of nature, and not merely a function of human reasoning. Quantum theorist and mathematician Elias Zafiris and philosopher Michael Epperson will discuss how these ideas form the foundation of an intuitive interpretation of quantum mechanics, which they present formally in their forthcoming book, *Foundations of Relational Realism: Quantum Mechanics, Category Theory, and the Philosophy of Process* (Lexington Books, 2013).

**DATE AND TIME:** Wednesday, October 24, 2012, 7:00 – 8:00 pm

**LOCATION:** Petris Room, Tsakopoulos Hellenic Collection,  
University Library 3023 (3<sup>rd</sup> floor)

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