



HIST - PHIL 199

From Potentiality to Actuality: Heisenberg's Rehabilitation of Aristotle in Quantum Mechanics

An Upper-Division Undergraduate Seminar / Colloquium – 3 Units

www.csus.edu/cpns

Fall 2026

Tuesday evenings, 5:30 – 7:00 pm
MENDOCINO HALL Room 4005

Instructors

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This seminar in [History and Philosophy of Science](#) explores the rehabilitation of Aristotelian metaphysics—specifically, his hylomorphic conceptual framework and its **dipolar duality of actuality and potentiality**—in the conceptual foundations of modern quantum mechanics. We will see how the innovative ideas Aristotle developed in his works *Metaphysics*, *Physics*, and his logical works, have, after 2400 years, re-emerged as foundational to event-ontological interpretations of quantum theory, including decoherent (consistent) histories and the topological Relational Realist frameworks.

Here, the approach of **intellectual history** emblematic of the discipline of History and Philosophy of Science reveals its advantage over the traditionally separated disciplines of philosophy of science and history of science. By studying the historical evolution of scientific conceptual frameworks—the evolution of the ideas themselves—one can investigate when, where, and why certain dual categories of nature, like concrete / abstract, matter / energy, matter / mind, have been typically framed not as *mutually implicative*, *dipolar dualities*, per Aristotle's framework, but rather as *mutually exclusive*, *bipolar dualisms*, with one category characterized as fundamentally real and the other merely derivatively descriptive; and more important, one can examine how and why every attempted scientific reduction to categorical dualism has ultimately failed.

This is an interdisciplinary seminar so we are seeking advanced students interested in bringing their individual strengths in the sciences and humanities into conversation. Instructor permission is required, so if you're interested in joining us, please email Dr. Epperson at epperson@csus.edu