The Oxford Many Worlds Interpretation of Quantum Mechanics: A Hylomorphic Critique and Alternative

By Robert Koons

A group of philosophers and physicists at Oxford have recently crafted, in light of developments in the theory of decoherence, a new version of the Everett or Many Worlds interpretation of quantum mechanics. I will focus on the work of David Wallace, who identifies the quasi-classical domains making up the various "worlds" or "branches" of the interpretation with macroscopic patterns that are functionally realized (to an approximate degree good enough for practical purposes) by the quantum wave function of the universe. I argue that Wallace's program is vulnerable to a version of Putnam's model-theoretic indeterminacy argument, with the result that almost any conceivable macroscopic "world" is in fact realized by that function and so is (by Wallace's light) as real as our own. I offer a hylomorphic revision of the many-worlds model, the "traveling forms" interpretation of Alexander Pruss, and I argue that this revision solves both the indeterminacy problem and the problem of interpreting quantum probabilities.