

The Problem of Ontology for Spontaneous Collapse Theories

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Abstract

The question of how to interpret spontaneous collapse theories of quantum mechanics is an open one. One issue involves what link one should use to go from wave function talk to talk of ordinary macroscopic objects. Another issue involves whether that link should be taken ontologically seriously. In this paper, I argue that the link should be taken ontologically seriously; I argue against an ontology consisting solely of the wave function. I then consider three possible links: the fuzzy link, the accessible mass density link, and the mass density simpliciter link. I show that the first two links have serious anomalies which render them unacceptable. I show that the mass density simpliciter link, in contrast, is viable.

Keywords: spontaneous localization theories, dynamical reduction theories, GRW theory, wave function ontology, fuzzy link, mass density link

Subjects: [Specific Sciences: Physics: Quantum Mechanics](#)

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Additional Information: This is an improved version of the paper of the same title I deposited previously. Also, the symbols now all appear correctly in the pdf file.

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