

Wave Collapse Doesn't Matter

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In quantum mechanics, there is much ado over measurement. We study a particular model for a quantum experiment: we allow a quantum particle to interact with a fluid, and look for a splash in the fluid. We derive a simple nonlinear model for this system, the Multiconfiguration Gross Pitaevski equation. We show that this model leads to decoherence and make the measurement postulates irrelevant. We also show that for a popular class of ontologies (which includes Many Worlds and Bohmian Mechanics) that any experiment yielding statistically significant results implies decoherence of the wavefunction.