

# The Emergence of Classicality from Quantum Mechanics

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If quantum mechanics describes things that are small, and classical mechanics describes things that are big, what happens to the physics of the things in-between? Given the assumption that all quantum states are equally likely to occur, and that many quantum states involve some kind of quantum superposition, why is that we don't see macroscopic objects in quantum superposition? There have been many suggestions and theories to describe the quantum-to-classical transition, and the correct answer (if there is any) is still unclear, although it is widely accepted that decoherence theory plays a role. In this talk, I will introduce a number of different approaches to explaining emergent classicality, including quantum Darwinism and the relative state (many worlds) interpretation.