

**The Quantum-Mechanical Measurement Problem and the Foundations of Statistical Mechanics**

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It turns out that a promising proposal for solving the Quantum-Mechanical measurement problem – which is the central problem at the foundations of quantum mechanics – may shed an important and unexpected new light on the nature and the origins of the probabilities at the foundations of Statistical Mechanics. I will begin by reviewing the measurement problem, and I will give a very brief overview of various attempts at solving it. Then I will focus in on one family of such attempts - the theories of the so-called “spontaneous localization” of the wave-function. And finally, I will show how those theories – if they turn out to be true - can explain the origin of the statistical-mechanical probabilities that we need to account for (say) the second law of thermodynamics, and (more generally) for all of the rest of the special sciences.

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