

Abstract Submitted  
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**Quantum Mechanics as the Outcome of an Accumulative Statistical Process** CHRISTOPHER THRON, Texas AM University-Central Texas — For a general quantum theory that is describable by a path integral formalism, we construct a mathematical model of a statistical accumulation-to-threshold process whose outcomes give predictions that are nearly identical to the given quantum theory. The model is neither local nor causal in spacetime, but is both local and causal in a larger space which includes an additional dimension: the spacetime universe attains its observed configuration by means of a process in which the added dimension is the dynamical variable. The probabilistic nature of the squared wavefunction is a natural consequence of the model, and the model avoids conceptual difficulties encountered by other interpretations of quantum mechanics. We verify the model with simulations, and we discuss possible discrepancies from conventional quantum theory that might be detectable via experiment. Finally, we discuss the physical implications of the model.

Christopher Thron  
Texas A  
M University-Central Texas

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