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Operational Dynamic Modeling Transcending Quantum and Classical Mechanics[1] DMITRY ZHDANOV, Department of Chemistry, Northwestern University, DENYS BONDAR, RENAN CABRERA, HERSCHEL RABITZ, Department of Chemistry, Princeton University — We introduce a general and systematic theoretical framework for Operational Dynamic Modeling (ODM) by combining a kinematic description of a model with the evolution of the dynamical average values. The kinematics includes the algebra of the observables and their defined averages. The evolution of the average values is drawn in the form of Ehrenfest-like theorems. We show that ODM is capable of encompassing wide ranging dynamics from classical non-relativistic mechanics to quantum field theory. The generality of ODM should provide a basis for formulating novel theories.

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