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Quantized friction force: Lindbladian model satisfying Ehrenfest theorems DENYS BONDAR, RENAN CABRERA, ANDRE CAMPOS, HERSCHEL RABITZ, Princeton Univ — We construct a quantum counterpart of classical friction, a dissipative force acting against the direction of motion with the magnitude proportional to particle's velocity. In particular, a Lindblad master equation is derived satisfying the appropriate dynamical relations for observables (i.e., the Ehrenfest theorems). Numerical illustrations as well as theoretical investigations are presented. These findings significantly advance a long search for a universal valid Lindbladian model of quantum friction.

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