

Abstract Submitted  
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**Fluctuation-induced dissipation in non-equilibrium moving systems** MOHAMMAD MAGHREBI, MIT, RAMIN GOLESTANIAN, Oxford University, ROBERT JAFFE, MEHRAN KARDAR, MIT — Quantum fluctuations in moving systems lead to nontrivial effects such as dissipation and radiation. We consider moving bodies—a single rotating object or multiple objects in relative motion—and derive the frictional force by using techniques from non-equilibrium statistical physics as well as quantum optics. The radiation to the environment is obtained as a general expression in terms of the scattering matrix which is a powerful analytical tool. We apply our general formulas to several examples of systems out of equilibrium due to their motion.

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