

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Friction forces on atoms after acceleration DIEGO DALVIT, Los Alamos National Laboratory, FRANCESCO INTRAVAIA, Max Born Institute, Germany, VANIK MKRTCHIAN, Institute for Physical Research, Armenia, STEFAN BUHMANN, University of Freiburg, Germany, STEFAN SCHEEL, University of Rostock, Germany, CARSTEN HENKEL, University of Postdam, Germany — We revisit the calculation of atom-surface quantum friction in the formulation based on perturbation theory. We show that the power dissipated into field excitations and the associated friction force depend on how the atom is boosted from being initially at rest to a configuration in which it is moving at constant velocity parallel to the planar interface. In addition, we point out that there is a subtle cancellation between the one-photon and part of the two-photon dissipating power, resulting in a leading order contribution to the frictional power which goes as the fourth power of the velocity.

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Date submitted: 11 Nov 2014

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