

# **Stochastic Adiabatic Wall**

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Non-equilibrium statistical mechanics is applied to the adiabatic piston problem. In one dimension the piston is modelled by a structureless particle possessing a single translational degree of freedom. Its stochastic motion induced by collisions is shown to ensure the thermal energy flow between the separated volumes of the fluid. From the fundamental point of view, the piston with a finite mass is thus not adiabatic in the thermodynamic sense. However, physically relevant conclusions should take into account the time scales involved.

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