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# Variability of the adiabatic parameter in (non-)thermal plasmas

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## Abstract

Numerical models of the evolution of interstellar plasmas often assume that the adiabatic parameter  $\gamma$  (the ratio of the specific heats at constant pressure and volume) is constant. However, it is determined by the total internal energy. We carry out detailed simulations of the thermal and non-thermal plasma evolution in order to determine the temperature evolution and equilibrium ionization conditions from an initial temperature of  $10^9$  K. The calculations include electron impact ionization

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