## *The influence of frequency-dependent radiative transfer on the structures of radiative shocks*

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Radiative shocks are shocks in a gas where the radiative energy and flux coming from the very hot post-shock material are non-negligible in the shock's total energy budget, and are often large enough to heat the material ahead of the shock. Many simulations of radiative shocks, both in the contexts of astrophysics and laboratory experiments, use a grey treatment of radiative transfer coupled to the hydrodynamics. However, the opacities
of the gas show large variations as a function of frequency and this needs to be taken into account if one wishes to reproduce the relevant physics.

We have performed radiation hydrodynamics simulations of radiative shocks in Ar using multigroup (frequency dependent) radiative transfer with the HERACLES code. The opacities were taken from the ODALISC database.

We show the influence of the number of frequency groups used on the dynamics and morphologies of subcritical and supercritical radiative shocks in Ar gas, and in particular on the extent of the radiative precursor. We find that simulations with even a low number of groups show significant differences compared to single-group (grey) simulations, and that in order to correctly model such shocks, a minimum number of groups is required. Results appear to eventually converge as the number of groups increases above 50. We were also able to resolve in our simulations of supercritical shocks the adaptation zones which connect the cooling layer to the final post-shock state and the precursor.