

## Hybrid multiscale methods for hyperbolic relaxation problems

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In this work we consider the development of hybrid numerical methods for the solution of hyperbolic relaxation problems with multiple scales. The main ingredients in the schemes are a suitable merging of probabilistic Monte Carlo methods in non stiff regimes with high resolution shock capturing techniques in stiff ones. The key aspect in the development of the algorithms is the choice of a suitable hybrid representation of the solution. After the introduction of the different schemes the performance of the new methods is tested in the case of Jin-Xin relaxation system and Broadwell model.