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Seong Jun Kim* (skim396@math.gatech.edu), 686 Cherry Street, Atlanta, GA 30332, and **Gil Ariel, Bjorn Engquist, Richard Tsai** and **Haomin Zhou**. *Multiscale computations for highly oscillatory dynamical systems*.

The main focus of this talk is to design efficient numerical algorithms for a class of highly oscillatory dynamical systems with multiple time scales. The objective is to allow long time computation of macroscopic/coarse/slow variables rather than the full state variables. Classical numerical methods for highly oscillatory solutions need to resolve the finest scale over the entire time interval of interest and thus become inefficient. In order to accelerate computations and improve the accuracy, the framework of the heterogeneous multiscale method (HMM) is considered as a general strategy both for the design and the analysis of multiscale methods. (Received January 07, 2015)