

1071-65-120

**Hao Gao** and **Hongkai Zhao\***, Department of Mathematics, University of California, Irvine, CA 92697. *An efficient multi-level method for radiative transport equation with applications to optical imaging.*

We present an efficient algorithm for solving radiative transport equation (RTE) which is a golden standard for modeling photon migration in tissue. RTE is proposed in phase space which includes both spatial and angular variables. Moreover, the scattering term coupled particle transport in all directions together. We design a multi-level algorithm in both space and angle combined with appropriate discretization. Our algorithm can deal with multiple scattering and forward peaking effectively. Convergence and error estimate analysis will be shown. Applications to optical imaging will be provided. (Received February 27, 2011)