

Numerical Solution of the Radiative Transport Equation for Modulated Imaging of Tissues

A. D. Kimm

University of California, USA

We develop a novel numerical method to solve the radiative transport equation in a slab with an inhomogeneous absorption coefficient for modulated imaging of tissues. In modulated imaging of tissues, the incident light is modulated spatially permitting the sampling of the solution in the spatial frequency domain. We use the iterated source method to handle the integral operator. For the angle variables, we use the discrete ordinate method. We use a Fourier pseudo-spectral method to treat the transverse spatial variables. We use a semi-implicit method to solve the resulting discretized system of equations. We show numerical results using this method of direct images using spatially modulated illumination.