

1109-65-72

Manabu Machida*, 530 Church Street, Ann Arbor, MI 48109. *The Green's function by the 3D F_N method for inverse transport problems.*

Optical tomography is formulated as an inverse transport problem or by approximation as an inverse diffusion problem which determines coefficients of the equation from boundary values. Such inverse problems are nonlinear. Here we consider the inverse transport problem without diffusion approximation. Then the nonlinear map is given by the Green's function for the transport equation. Thus, it is crucial to precisely obtain the Green's function to solve inverse transport problems. The F_N method devised in 1978 is a numerical method which obtains the specific intensity of the one-dimensional transport equation. In this talk, we will obtain the Green's function by extending the F_N method to three dimensions. (Received January 20, 2015)