OPTICAL TOMOGRAPHY: THE FORWARD MODEL BASED ON THE RADIATIVE TRANSFER EQUATION

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Resumo/Abstract:
The modeling and analysis of Optical Tomography is based, in general, in a forward model that describes the light propagation and the inverse process for reconstructing the optical properties. Due to the complexity of the radiative transfer equation (RTE), the forward model is mostly based on the diffusion equation, a low-order approximation, valid only under some physical restrictions. In this sense, recent studies have been focused on the development of efficient algorithms based on the RTE solution, taking into account particular aspects of biological tissue optics. In this talk, we discuss the development of explicit solutions for the multidimensional discrete ordinates approximation of the RTE that may be useful to improve the solution process of the forward model relevant to Optical Tomography. In particular the two-dimensional case is treated based on the so-called nodal schemes.