1067-65-2145   **Weimin Han** and **Joseph A Eichholz*** (`jeichhol@math.uiowa.edu`), Department of Mathematics, University of Iowa, Iowa City, IA 52242, and **Xiaoliang Cheng** and **Ge Wang**. *A discontinuous Galerkin method for solving a modified Leakeas-Larsen equation.*

Light propagation in biological tissue is governed by the radiative transport equation (RTE). In several current medial imaging modalities the objective is to reconstruct optical parameters of the domain by matching predicted measurements given by solutions of the RTE to observed measurements. Therefore it is important to develop efficient and accurate methods of solving the RTE. In practice, the diffusion equation is used as an approximation to the RTE to reduce computational expense. We propose a new approximation method based on a modification to the Leakeas-Larsen equation. Existence and uniqueness of solutions to this equation is proven, and a discontinuous Galerkin method to solve the problem is developed. (Received September 22, 2010)