

Discontinuous Galerkin Methods for Elliptic Problems: Old Wine in a New Bottle

Amiya Kumar Pani

Abstract:

In the beginning, we try to answer the question `why there is a need to relook at mathematics and What are main focus in Computational PDEs ? In the first part of the talk, we shall discuss different classes of discontinuous Galerkin methods (DGM) for linear elliptic problems and derive {\it a priori} error estimates along with some numerical experiments to confirm theoretical results. In the last part, we shall focus on DGMs for elliptic problems and establish existence of solution to the discrete problems using fixed point arguments. Finally, we shall derive convergence results.