“A spacetime DPG method for the Schrödinger equation”
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Abstract

Although the heat and Schrödinger equations differ only by multiplication by a complex number, their spacetime behaviours are vastly different. The aim of this talk is to highlight one of these differences that is pertinent in the development of spacetime formulations. We show that it is possible to lose solutions if the second order Schrödinger equation is reformulated into a first order formulation. This makes spacetime methods based on a second order formulation particularly appropriate for low regularity data. We highlight such differences between the Schrödinger and the heat equation as we describe the various steps of derivation and analysis of a spacetime DPG methods for both.