

# Application of implicit-explicit general linear methods to reaction-diffusion problems

Hong Zhang      Adrian Sandu

## **Abstract**

Implicit-explicit (IMEX) time stepping methods can efficiently solve differential equations with both stiff and nonstiff components. We have recently proposed new implicit-explicit methods of general linear type (IMEX-GLMs). It was shown that no additional coupling order conditions are needed, and consequently that GLMs offer an excellent framework for the construction of multi-method integration algorithms. In this paper we investigate the application of IMEX GLMs to solve reaction-diffusion problems. Numerical results show that IMEX GLMs are very competitive for these applications.