G-symplectic General Linear Methods

Terence Norton (University of Bath)

G-symplectic general linear methods have similar properties to symplectic Runge-Kutta methods. G-symplectic GLMs have an advantage over symplectic RKMs in that they can achieve high order with a minimally implicit stage matrix. We will discuss the construction of several G-symplectic methods of orders up to and including four, and demonstrate their application to classical separable and non-separable Hamiltonian problems.