Title:
Complex-valued N-split operator-splitting methods

Abstract:

Operator-splitting methods are generally constructed for a given number of operators, usually N=2. Most 2- or 3-split operator-splitting methods are not extendable to N-split problems for arbitrary N due to inherent order condition constraints. In this talk, we derive a pair of second-order complex-values OS methods for N-split problems. These methods are computationally inexpensive. They can be used as a base method to construct high-order complex-valued OS methods with positive real components. We will discuss the efficiency of these methods comparing with real-valued operator-splitting methods on various numerical examples.