Operator splitting methods: analysis and application

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Operator splitting is a powerful method for numerical investigation of complex models. The basic idea of the operator splitting methods based on splitting of complex problem into a sequence of simpler tasks, called split sub-problems. The sub operators are usually chosen with regard to different physical process. Then instead of the original problem, a sequence of sub models are solved, which gives rise to a splitting error. In this talk, we will present the different convergent analysis techniques for operator splitting methods. Finally, we will support our theoratical results with the numerical examples.