数学与系统科学研究院

计算数学所学术报告

报告人： Dr. Changhe Qiao

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报告题目：

A Novel Decoupling Technique for Fully Implicit Reservoir Simulation

邀请人： 张晨松 副研究员

报告时间：2015 年 12 月 9 日（周三）
上午 10:30~11:30

报告地点： 科技综合楼三层
311 报告厅

Abstract：

Reservoir simulation is an important tool for petroleum engineers. In this talk, I will discuss the formulation of a general purpose reservoir simulator that includes black oil model, equation of state compositional model, reactive transport model and coupled models. I will also talk about the linear solver for the fully implicit formulation. An asymptotic analysis is provided for the decoupling stage of the constraint pressure residual (CPR) preconditioner. An analytical decoupling technique at the partial differential equation level was proposed. This decoupling method preserves the elliptic properties of pressure matrix and ensures the performance of algebraic multigrid preconditioning used as the first stage of CPR. I will also present a semi-analytical decoupling strategy. Numerical experiments demonstrate the superior performance of the new methods.

欢迎大家参加！