

学术报告

报告题目: Optimization of Well Placement and Fracture Design for Multi-Well Pad Development in Tight Oil Reservoirs

报告人: 陈胜男 副教授、博士生导师

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地 点: 国家重点实验室 A403 学术报告厅

报告人单位: 加拿大卡尔加里大学

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报告内容: Multi-well pad has been considered as the most efficient horizontal-well drilling technique in unconventional tight oil reservoir development. It remains a challenging task to optimize both hydraulic fracture parameters and well placement simultaneously. In this work, a global optimization framework based on generalized differential evolution (GDE) algorithm and a Bayesian optimization algorithm are developed and successfully applied to optimize the production performance of multi-well pad in the Cardium tight oil formation. The optimization process integrates the available field data into the optimization framework to obtain a practical optimum scenario for the multi-well pad development. The well spacing, well length, fracture spacing, fracture half-length, and fracture conductivity of each well in a multi-well pad are optimized and a highest NPV is achieved.

陈胜男, 加拿大卡尔加里大学化学与石油工程系副教授、博士生导师。主要研究方向: 油藏数值模拟与动态优化, 非常规致密油气藏水平井压裂与开发, 机器学习与数据挖掘在油藏工程中的应用, 非常规稠油油藏开发等。目前在国际石油及能源行业著名期刊 Fuel、Fluid Phase Equilibria、SPE Reservoir Evaluation & Engineering-Reservoir Engineering、Journal of Petroleum Science and Engineering 等杂志以及国际会议上发表论文 60 余篇。2018 年在英国帝国理工大学 Royal School of Mines 任访问学者, 目前担任 Journal of Petroleum Science and Engineering 杂志执行主编, 以及 Geofluids 杂志副主编, 并在 2014-2016 年担任 Journal of Natural Gas Science and Engineering 副主编。

油气藏地质及开发工程国家重点实验室
西南石油大学科研处
石油与天然气工程学院

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