

## Reservoir simulation: mathematical techniques in oil recovery

Chen, Zhangxin, 1962- , author

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### Abstrak

This book covers and expands upon material presented by the author at a CBMS-NSF Regional Conference during a ten-lecture series on multiphase flows in porous media and their simulation. It begins with an overview of classical reservoir engineering and basic reservoir simulation methods and then progresses through a discussion of types of flows—single-phase, two-phase, black oil (three-phase), single phase with multicomponents, compositional, and thermal.

The author provides a thorough glossary of petroleum engineering terms and their units, along with basic flow and transport equations and their unusual features, and corresponding rock and fluid properties. The practical aspects of reservoir simulation, such as data gathering and analysis, selection of a simulation model, history matching, and reservoir performance prediction, are summarized.