



## Tomography-based Methods for Reactive Flows in Porous Media

By Jörg Petrasch

VDM Verlag Sep 2009, 2009. Taschenbuch. Book Condition: Neu. 220x150x11 mm. Neuware - Reactive flows in porous media are ubiquitous in nature as well as technology. Typical examples range from groundwater flows to catalytic conversion. Macroscopic behavior is determined by the porous micro geometry. Therefore, transport processes involve multiple length and time scales. Modeling these transport processes heavily relies on continuum approximations, which account for the influence of the micro geometry via effective properties. This book presents a new pathway to treating porous media flows and effective properties: tomography based determination of the porous micro geometry combined with direct numerical simulation of pore level processes. Phenomena discussed include conduction, convection, and radiation heat transfer, fluid flow, and heterogeneous chemical reaction. The method is exemplified throughout the book by solar thermal reforming of hydrocarbons in catalytic porous ceramic foams. The book is addressed to practitioners, scientists, and advanced students dealing with heat and mass transfer in porous media. 184 pp. English.

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