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Autore	Chung Eric
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Altri autori (Persone)	EfendievYalchin HouThomas Y
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in Temporal Splitting. Efficient Implicit-explicit Methods for Multiscale Problems -- References -- Index.

Sommario/riassunto

This monograph is devoted to the study of multiscale model reduction methods from the point of view of multiscale finite element methods. Multiscale numerical methods have become popular tools for modeling processes with multiple scales. These methods allow reducing the degrees of freedom based on local offline computations. Moreover, these methods allow deriving rigorous macroscopic equations for multiscale problems without scale separation and high contrast. Multiscale methods are also used to design efficient solvers. This book offers a combination of analytical and numerical methods designed for solving multiscale problems. The book mostly focuses on methods that are based on multiscale finite element methods. Both applications and theoretical developments in this field are presented. The book is suitable for graduate students and researchers, who are interested in this topic.
