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Titolo	Separated Representations and PGD-Based Model Reduction [[electronic resource] ] : Fundamentals and Applications // edited by Francisco Chinesta, Pierre Ladevèze
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Collana	CISM International Centre for Mechanical Sciences, Courses and Lectures, , 0254-1971 ; ; 554
Disciplina	004 620 620.00420285 620.1
Soggetti	Mechanics Mechanics, Applied Computer mathematics Computer-aided engineering Theoretical and Applied Mechanics Computational Science and Engineering Computer-Aided Engineering (CAD, CAE) and Design
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	From the Contents: Model order reduction based on proper orthogonal decomposition: Model reduction: extracting relevant information -- Interpolation of reduced basis: a geometrical approach -- POD for non-linear models.
Sommario/riassunto	The papers in this volume start with a description of the construction of reduced models through a review of Proper Orthogonal Decomposition (POD) and reduced basis models, including their mathematical foundations and some challenging applications, then followed by a description of a new generation of simulation strategies based on the use of separated representations (space-parameters, space-time, space-time-parameters, space-space,...), which have led

to what is known as Proper Generalized Decomposition (PGD) techniques. The models can be enriched by treating parameters as additional coordinates, leading to fast and inexpensive online calculations based on richer offline parametric solutions. Separated representations are analyzed in detail in the course, from their mathematical foundations to their most spectacular applications. It is also shown how such an approximation could evolve into a new paradigm in computational science, enabling one to circumvent various computational issues in a vast array of applications in engineering science.

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