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	Note generali	"This two-part book contains the lecture notes of the XV Spanish-French School on Numerical Simulation in Physics and Engineering that took place in Torremolinos (Malaga, Spain) in September 2012: Part I corresponds to the four courses and Part II to the invited talks. This series of Schools is organized every 2 years since 1984 and it intends to bring together professionals, researchers, and students interested in numerical methods".
	Nota di contenuto	1 Begona Calvo and Estefania Pena: Fundamental aspects in modeling the constitutive behaviour of the fibered soft tissues -- 2 Enrique D. Fernandez Nieto: Some remarks on avalanche modeling. An introduction to shallow flow models -- 3 Emmanuel Gobet: Introduction to stochastic calculus and to the resolution of PDEs using

Monte Carlo simulations -- 4 Philippe G. LeFloch: Structure-preserving shock-capturing methods and applications -- 5 Carlos Castro: Numerical approximation of optimal design problems in aerodynamics. From the mathematical analysis to industrial codes -- 6 Emanuele Schiavi: Medical image processing: mathematical modeling and numerical resolution -- 7 Denis Talay: On probabilistic approaches for divergence from operators with discontinuous coefficient.

| Sommario/riassunto | This book, based on the lecture notes from the XVth Spanish-French School on Numerical Simulation in Physics and Engineering, covers a range of advances in numerical simulation in physics and engineering. The main subjects addressed are: biomechanics, stochastic calculus, geophysical flow simulation, and shock-capturing numerical methods for hyperbolic systems of partial differential equations. The book is mainly aimed at young graduate students in mathematics, engineering, and natural sciences who are starting to confront numerical simulation, either at a research level or in the field of industrial applications. It will also be helpful for researchers or even technicians who are working in an industrial environment and are interested in the state-of-the-art numerical techniques in these fields. Finally, the book will be useful as a textbook for master's or PhD level courses in mathematics, physics, or engineering. |