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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Modelling Collective Cytoskeletal transport and intracellular traffic -- Tumour Cell Biology and some New Non-local Calculus -- Industrial mathematics in Europe Visualizing Multivariate Data Using Singularity Theory -- Two applications of geometric optimal control to the dynamics of spin particles -- Cryptographic Technology for Benefiting from Big Data -- Secure Cryptographic Module Implementation and Mathematics -- The continuing challenge of steel; How to win mathematicians and influence scientists in other disciplines -- A Implicit methods for simulating low Reynolds number free surface flows; improvements on MAC-type methods -- Robust Naive Bayes Combination of Multiple Classifications -- Developing Mathematicians for Industry Research Teams -- Cryptanalysis of Pairing-Based Cryptosystems over Small Characteristic Fields -- Applied Algebraic Geometry in Model Based Design for Manufacturing -- The method of cyclic intrepid projections; convergence analysis and numerical

experiments -- Analytical Optimization of Local Quantum Operation and Classical Communication -- Cellular networks with -Ginibre configurated base stations -- Nucleation rate identification in binary phase transition -- Multi-scale problems, high performance computing and hybrid numerical methods -- Multi-Frequency Induction Hardening– a Challenge for Industrial Mathematics -- Interactions in Mixed Lipid Bilayers -- A note on reconstructing the conductivity in impedance tomography by elastic perturbation -- Applicability of Bayesian methods for loss ratio estimation -- Simple Mathematical Models for Complex Industrial Processes -- Principal Component Analysis and Laplacian Splines; steps toward a unified model -- Mathematics-in-Industry Study Group (MISG) steel projects from Australia and New Zealand -- Applications of Integrable Nonlinear Diffusion Equations in Industrial Modelling -- User Interfaces for Character Animation and Character Interaction -- Thermodynamic Gibbs Formalism and Information Theory -- Need for Mathematics Researchers in Industry; From Standpoint of an Industrial Researcher.

Sommario/riassunto

This book is a collection of papers presented at the Forum “The Impact of Applications on Mathematics” in October 2013. It describes an appropriate framework in which to highlight how real-world problems, over the centuries and today, have influenced and are influencing the development of mathematics and, thereby, how mathematics is reshaped, in order to advance mathematics and its application. The contents of this book address productive and successful interaction between industry and mathematicians, as well as the cross-fertilization and collaboration that result when mathematics is involved with the advancement of science and technology.