1. Record Nr. UNINA9911015966003321

Autore	Hasanov Hasanolu Alemdar
Titolo	Inverse Problems: Modelling and Simulation : Extended Abstracts of the IPMS Conference 2024 / / edited by Alemdar Hasanov Hasanolu, Roman Novikov, Karel Van Bockstal
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Birkhäuser, , 2025
ISBN	3-031-87213-4
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (615 pages)
Collana	Research Perspectives Ghent Analysis and PDE Center, , 2948-1732 ; ; 11
Altri autori (Persone)	NovikovRoman Van BockstalKarel
Disciplina	518
Soggetti	Mathematics - Data processing Mathematical models Image processing - Digital techniques Computer vision Numerical analysis Computational Mathematics and Numerical Analysis Mathematical Modeling and Industrial Mathematics Computer Imaging, Vision, Pattern Recognition and Graphics Numerical Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	- Part I: Detection Methods -- 1. Determination of cavities in nonlinear parabolic systems arising from electrophysiology -- 2. Source detection on a network: numerical considerations -- 3. Resonator-Based Mass Detection in Nanostructures -- 4. Exploring instabilities of inverse problem solvers with low-dimensional manifolds -- 5. The multifrequency topological derivative method as a data processing tool in nondestructive testing -- 6. Motion Detection in Diffraction Tomography -- Part II: Geometric Inverse Problems -- 7. Survey on Broken Ray Transforms -- 8. Inverse Problems for Twisted Geodesic Flows -- 9. Applications of momentum ray transforms in inverse problems -- Part III: Inverse and Control Problems in Vibrating Structures -- 10. On the use of a roving harmonic load to locate cracks

in shear deformable beam -- 11. Identification of out-of-plane loads over Timoshenko beams -- 12. Inverse Source Problems of Damped Vibrating Beam and Plate Models -- Part IV: Inverse Problems and Imaging -- 13. Higher order autocorrelations -- 14. Inverse Problems in Image Restoration -- 15. A Counterexample to Convergence for Multiscale -- 16. Three-dimensional brassiere design for electrical impedance tomography and numerical conductivity reconstructions in EIDORS -- 17. Permittivity Estimation Using Plasmonics -- Part V: Inverse problems and Regularisation -- 18. On Fourier Phase Retrieval by Differential Intensity Measurements in Finite Dimensions -- 19. Bi-level regularization via iterative mesh refinement for aeroacoustics -- Part VI: Inverse Problems for Fractional Equations -- 20. The Inverse Problem for the Fractional Conductivity -- 21. Inverse problems for simultaneous determination of source terms and several scalar parameters of fractional diffusion equations -- 22. A local uniqueness theorem for the fractional Schr¨odinger equation on closed Riemannian manifolds -- 23. Time-fractional diffusion equations of piecewise constant time-varying order -- Part VII: Inverse Problems for PDEs -- 24. A global optimum-informed greedy algorithm for A-optimal experimental design -- 25. Multi-dimensional operators with Sonine kernels -- 26. Numerical Reconstruction of Orders in Coupled Systems of Subdiffusion Equations -- 27. Inverse problems for a wave equation with an interface -- 28. New derivation of relaxation tensor for anisotropic extended Burgers model -- 29. Inverse Problems for Screens -- 30. Shearlet localization operator and microlocal analysis -- 31. Strong Unique Continuation for the Damped Wave -- Part VIII: Inverse Scattering Problems -- 32. Reduced Order Lippmann-Schwinger-Lanczos Inverse Scattering Method -- 33. Transparent scatterers and transmission eigenvalues -- 34. On passive inverse obstacle scattering problems with Neumann and Robin boundary conditions -- 35. New series representations and reconstruction techniques in coefficient inverse problems -- 36. A method to extrapolate the data for the inverse magnetisation problem with a planar sample -- 37. Lippmann-Schwinger-Lanczos approach for inverse scattering problem of Schrödinger equation in the resonance frequency domain -- Part IX: Machine Learning -- 38. Quantum-inspired classification algorithms -- Part X: Radon Transforms and Applications -- 39. Geometry of domains and algebraic type of their Radon transforms -- 40. Remarks on the Interior Problem for the Radon transform -- 41. Range conditions for some divergent-beam transforms -- 42. Super-resolution reconstruction from truncated Hankel transform -- Part XI: Stochastic Problems and Bayesian Inversion -- 43. Inverse stochastic variational formulation for a control economic equilibrium problem -- 44. Sampling in Bayesian inversion accelerated by surrogate models.

Sommario/riassunto

This volume presents the latest theoretical and experimental advancements in the field of inverse problems in recent years. It includes outstanding research results that reflect current theoretical and numerical aspects of inverse problems and their various applications. The volume is a collection of selected contributions from nearly three hundred invited presentations at the International Conference "Inverse Problems: Modelling and Simulation" (IPMS 2024) held from May 26 to June 1, 2024, in Malta. The topics covered in this volume are closely related to emerging deterministic and stochastic models in the fields of medical imaging, biology, geophysics, radar, computer science, communication theory, signal processing, visualization, engineering, and economics. The contributions in this volume reflect a broad range of problems in the theory and

applications of inverse problems that are useful for mathematicians, physicists, engineers, and researchers working with inverse problems.