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Nota di contenuto	Refereed Articles -- MATRIX--MFO Tandem Workshop: Invariants and Structures in Low-Dimensional Topology -- A new family of minimal ideal triangulations of cusped hyperbolic 3--manifolds -- MATRIX Program: Groups and Geometries one complex dimensional moduli spaces of hyperbolic manifolds and orbifolds: Kleinian groups and the generalised Riley slices -- MATRIX Program: Quantum Curves, Integrability and Cluster Algebras -- First properties of supermanifolds, their functor of points and the DeWitt topology -- MATRIX Program: 2D Supersymmetric Theories and Related Topics -- On Super Non-Abelian T-Duality of Symmetric and Semi-Symmetric Coset Sigma Models -- On Twisted Elliptic General Minkowski and (A)dS ground states in general 2d dilaton gravity' -- \$2d\$ Sigma Models and Geometry -- MATRIX Program: Structural Graph Theory Downunder II -- Product Structure of Graph Classes with Bounded Treewidth -- Notes on Aharoni's rainbow cycle conjecture -- Marc Distel, David R. Wood\newline ``Tree-Partitions with Bounded Degree Trees -- Treewidth, Circle Graphs and Circular Drawings -- MATRIX Program: Hyperbolic Differential Equations in Geometry and Physics -- Bulk-boundary correspondences

and unique continuation in asymptotically Anti-de Sitter spacetimes -- Propagation of Singularities for the Wave Equation -- MATRIX Program: Mathematics of Tissue Dynamics -- Multiphase models for moving boundary problems in biology -- MATRIX Program: Mathematics of Risk 2022 -- Asian Option Pricing via Laguerre Quadrature: A Diffusion Kernel Approach -- On Dupire Formula and Diffusion with Given Marginals -- Multi-Factor Polynomial Diffusion Models and Inter-Temporal Futures Dynamics -- On Autoregressive Measurement Errors in a Two-Factor Model -- On extension of the Markov chain approximation method for computing Feynman–Kac type expectations -- On ruin probabilities in a Sparre Andersen type model in the presence of risky investments and random switching -- On some asymptotic expansions of skew diffusions -- Fractional Growth Portfolio Investment -- Lévy bandits under Poissonian decision times -- Entrance laws for continuous-state nonlinear branching processes coming down from infinity -- The matrix sequential probability ratio test and multivariate ruin theory -- Bayesian Parameter Estimation for Poisson AR Model -- Nonparametric Bayesian inference for stochastic processes with piecewise constant priors -- Quickest Change-point Detection in General Multistream Stochastic Models: Recent Results, Applications and Future Challenges -- MATRIX Program: Mathematics of the Interactions between Brain Structure and Brain Functions -- Mathematical Foundations for Measurement of Communication Efficiency in the Human Brain -- k-Means clustering in EEG (brain waves) timeseries -- IBS-CGP & MATRIX Workshop: Symplectic Topology -- Analysis of pseudoholomorphic curves on symplectization: Revisit via contact instantons -- High-jet Relations of the Heat Kernel: Embedding Map and Applications -- Other Contributed Articles.- MATRIX-MFO Tandem Workshop: Invariants and Structures in Low-Dimensional Topology -- Pachner's Theorem -- MATRIX Program: 2D Supersymmetric Theories and Related Topics -- Vacuum Structures Revisited -- MATRIX Program: Theory and Applications of Stable Polynomials -- A large class of conjecturally stable chromatic symmetric functions -- A problem about virtual polytopes -- A conjecture on spectral sparsification with respect to hyperbolicity cones -- Topological Narayana polynomials and interlacing conjectures.

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### Sommario/riassunto

MATRIX is Australia's international and residential mathematical research institute. It facilitates new collaborations and mathematical advances through intensive residential research programs, each 1-2 weeks in duration. This book is a scientific record of the 24 programs held at MATRIX in 2021-2022, including tandem workshops with Mathematisches Forschungsinstitut Oberwolfach (MFO), with Research Institute for Mathematical Sciences Kyoto University (RIMS), and with Sydney Mathematical Research Institute (SMRI).

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