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Sommario/riassunto

Sergio Albeverio gave important contributions to many fields ranging from Physics to Mathematics, while creating new research areas from their interplay. Some of them are presented in this Volume that grew out of the Random Transformations and Invariance in Stochastic Dynamics Workshop held in Verona in 2019. To understand the theory of thermo- and fluid-dynamics, statistical mechanics, quantum mechanics and quantum field theory, Albeverio and his collaborators developed stochastic theories having strong interplays with operator theory and functional analysis. His contribution to the theory of (non Gaussian)-SPDEs, the related theory of (pseudo-)differential operators, and ergodic theory had several impacts to solve problems related, among other topics, to thermo- and fluid dynamics. His scientific works in the theory of interacting particles and its extension to configuration spaces lead, e.g., to the solution of open problems in statistical mechanics and quantumfield theory. Together with Raphael Hoegh Krohn he introduced the theory of infinite dimensional Dirichlet forms, which nowadays is used in many different contexts, and new methods in the theory of Feynman path integration. He did not fear to further develop different methods in Mathematics, like, e.g., the theory of non-standard analysis and p-adic numbers.