Stochastic equations for Euclidean fields

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Stochastic analysis is the art of inferring properties of stochastic processes from equations they satisfy. In this talk I will overview various ways in which the basic ideas of Itô's approach to Markov processes have been extended to cover the highly irregular random fields which appear in the probabilistic approach to quantum field theory, initiated by Symanzik, Nelson and others. Apart from the intrinsic interest in this endeavour, these challenging applications continue to inspire new research directions for stochastic analysis.

Acknowlegments: I would to thank Sergio Albeverio, Nikolay Barashkov, Francesco de Vecchi, Luca Fresta, Masha Gordina, Martina Hofmanová, Sarah-Jean Meyer, Nimit Rana, Paolo Rinaldi and Mattia Turra for the joint research work on which this talk is based.

Funding: This work has been partially supported by the German Research Foundation (DFG) under Germany's Excellence Strategy - GZ 2047/1, project-id 390685813 and by the DFG Collaborative Research Center 1060 of the University of Bonn.