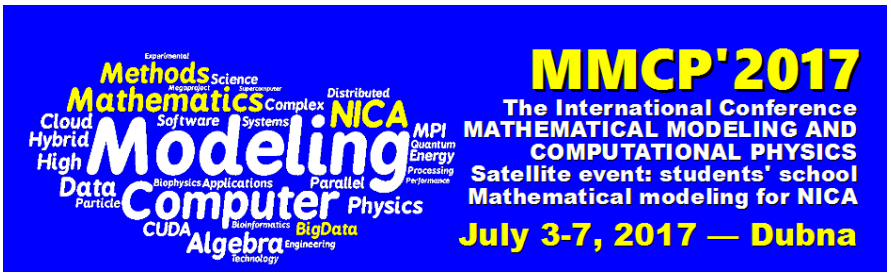

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Fractional stochastic field theory

Wednesday, 5 July 2017 09:30 (30 minutes)

Models describing evolution of physical, chemical, biological, social and financial processes are often formulated as differential equations with the understanding that they are large-scale equations for averages of quantities describing intrinsically random processes. Explicit account of randomness may lead to significant changes in the asymptotic behaviour (anomalous scaling) in such models especially in low spatial dimensions, which in many cases may be captured with the use of the renormalization group. Anomalous scaling and memory effects may also be introduced with the use of fractional derivatives and fractional noise. Construction of renormalized stochastic field theory with fractional derivatives and fractional noise in the underlying stochastic differential equations and master equations and the interplay between fluctuation-induced and built-in anomalous scaling behaviour is reviewed and discussed

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