Minisymposium 24 - Probability and Geometry

Diffusions on moduli spaces and generalised Stochastic Lœwner Evolutions

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In this talk we shall discuss a very general construction principle of measures on paths on Riemann surfaces. These curves naturally arise e.g. as the fluctuating phase boundaries of statistical mechanics models in the scaling limit. The fundamental observation is that a certain class of diffusion processes on a dressed moduli space generates random paths / sets on the surfaces themselves.
In our framework we obtain the “ordinary” Stochastic Lœwner Evolution (SLE), as a special case; thereby showing the underlying global geometric structure, as well.
Further, via the representation theory of infinite dimensional Lie algebras, we shall make contact with other mathematical / physical fields, in particular with Conformal Field Theory (CFT).