Probabilistic Liouville Theory

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Liouville Conformal Field Theory (LCFT) is a theory of random fields on two dimensional surfaces that plays a fundamental role in 2d random surface theory and many other fields in physics and mathematics. The correlation functions of LCFT random fields have expressions in terms of the Gaussian Free Field and Gaussian Multiplicative Chaos and can be shown to satisfy the axioms of Conformal Field Theory. Conformal Field Theories (CFT) are believed to be exactly solvable once their 3-point functions are known. I will review recent work where this conformal bootstrap program is rigorously carried out for the LCFT formulated on an arbitrary Riemann surface. The solution can be seen as a "quantization" of the plumbing construction of surfaces with marked points axiomatically discussed earlier by Graeme Segal. Joint work with Colin Guillarmou, Remi Rhodes and Vincent Vargas.

Wednesday, May 11, 2022 05:45pm - 07:00pm

Heinzel Seminar Room (I21.EG.101), Office Building West

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