

Segal axioms and resolution of Liouville conformal field theory via the conformal bootstrap

Colin Guillarmou

Liouville conformal field theory is a 2 dimensional field theory introduced in physics in the 80's. Here we give a probabilistic construction of the amplitudes of Riemann surfaces with boundary for this field theory, and we prove that they satisfy the so called Segal Axioms. This allows to decompose the correlation function of the theory using the diagonalisation of a certain operator, the Hamiltonian, using scattering theory. One can then show the formulas conjectured in physics in terms of conformal blocks. The spectral analysis, although in an infinite dimensional setting, has some similarities with scattering theory on symmetric spaces. This is joint work with Kupiainen, Rhodes and Vargas.