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A probabilistic approach to Toda Conformal Field Theories

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Toda Conformal Field Theories form a family of two-dimensional quantum field theories generalizing Liouville theory. One of their features is that they enjoy, in addition to conformal invariance, an enhanced level of symmetry encoded by W -algebras.

In this talk we describe their mathematical definition and study some of their properties. Namely we will explain how the understanding of its symmetries allows to provide a probabilistic derivation of the Fateev-Litvinov formula for a family of structure constants of the theory. Along with the proof we will shed light on some unexpected connections between a reflection principle in Toda CFTs and its probabilistic counterpart.

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