Department of Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Rational Conformal Field Theory : A primer

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A rational conformal field theory (RCFT) is a CFT with a finite number of primaries of the Virasoro algebra (appropriately extended). The tensor product of two such representations naturally leads to the notion of chiral vertex operators (CVOs). Correlation functions of CVOs, known as conformal blocks, encode much of the content of the CFT and a general correlation function can be written as a linear combination of a basis of conformal blocks. Conformal invariance imposes very strong restrictions on the space of conformal blocks of an RCFT. These constraints were effectively utilised by Moore and Seiberg [1,2] to study many features of the RCFT. We review this work in this talk and apply it to simple examples like the Ising and the U(1) WZW models. If time permits, we shall also review the relation of the above ideas to Chern-Simons theory.