Faculdade de Ciências da Universidade de Lisboa

# SEMINÁRIO DO GRUPO DE FÍSICA MATEMÁTICA

**Dia 24 de Abril (terça-feira), às 11h00, sala 6.2.33**

# Matrix Quantum Mechanics and the S1/Z2 orbifold


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**Abstract**: We revisit $c = 1$ non-critical string theory and its formulation via Matrix Quantum Mechanics (MQM). In particular we study the theory on an $S^1/Z_2$ orbifold of Euclidean time and try to compute its partition function in the grand canonical ensemble that allows one to study the double scaling limit of the matrix model and connect the result to string theory (Liouville theory). The result is expressed as the Fredholm Pfaffian of a Kernel which we describe in several bases. En route we encounter interesting mathematics related to Jacobi elliptic functions and the Hilbert transform. We are able to extract the contribution of the twisted states at the orbifold fixed points using a formula by Dyson for the determinant of the sine kernel. Finally, we will make some comments regarding the possibility of using this model as a toy model of a two dimensional big-bang big-crunch universe.


Local: FCUL – Edf. C6 - Piso 2, 6.2.33