

# Unitary matrix model with the logarithmic potential

*Thursday, 5 December 2019 15:00 (3 hours)*

We study the unitary one-matrix model with the logarithmic potential. It has been known that a hermitian one-matrix model with a logarithmic potential yields the prepotential of 4d  $N=2$   $SU(2)$  SUSY gauge theory as its large- $N$  free energy. We give a rigorous proof that the unitary matrix model with the potential of the same form as the hermitian matrix model for 4d  $N=2$   $N_f=2$   $SU(2)$  SUSY gauge theory yields the identical prepotential of it, although the parameter identifications of each model are slightly different. This result has been anticipated by Itoyama, Oota, and Yano.

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**Session Classification:** Poster