

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A&B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

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Theoretical Physics Department

Title:	Three dimensional view of SYK models with arbitrary q
Speaker:	Animik Ghosh, University of Kentucky, USA
Date:	January 4, 2018 (Thursday)
Time:	4:00 p.m.
Venue:	Theoretical Physics Seminar Room (C406), 3rd Floor, Centenary Building, IACS
Abstract:	In arXiv:1704.07208, it was shown that the spectrum and bilocal propagator of SYK model with four fermion interactions can be reproduced by a three dimensional model of a scalar field in $AdS_2 \times S^1/Z_2$. We show that a similar picture holds for generalizations of the SYK model with q-fermion interactions. The scalar now lives on a space whose metric is conformal to $AdS_2 \times S^1/Z_2$ and is subject to a non-trivial potential in addition to a delta function at the center of the interval. Horava-Witten compactification reproduces the exact SYK spectrum and a non-standard propagator between points which lie at the center of the interval exactly agrees with the bilocal propagator. As $q \rightarrow \infty$, the wavefunction of one of the modes at the center of the interval vanish as $1/q$, while the others vanish as $1/q^2$, in a way consistent with the fact that in the SYK model only one of the modes contributes to the bilocal propagator in this limit.

All are cordially invited to attend the seminar