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Spin Matrix theory as a model for the AdS/CFT correspondence

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We introduce a new type of quantum mechanical theory called Spin Matrix theory. It is a generalization of nearest-neighbor spin chain theories. We show that Spin Matrix theory arise from $N=4$ super Yang-Mills theory near certain zero-temperature critical points. We find that Spin Matrix theory contains a variety of phases that mimics that of the AdS/CFT correspondence, and hence gives a quantum mechanical model of the AdS/CFT correspondence. Finally, we suggest that Spin Matrix theory by itself can describe a Holographic correspondence.

Presenter: HARMARK, Troels

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