



**ΚΟΙΝΟ ΣΕΜΙΝΑΡΙΟ ΚΕΝΤΡΟΥ ΚΒΑΝΤΙΚΗΣ ΠΟΛΥΠΛΟΚΟΤΗΤΑΣ ΚΑΙ  
ΝΑΝΟΤΕΧΝΟΛΟΓΙΑΣ & ΚΕΝΤΡΟΥ ΘΕΩΡΗΤΙΚΗΣ ΦΥΣΙΚΗΣ ΚΡΗΤΗΣ /  
JOINT CCQCN -CCTP SEMINAR**

**Tuesday, 18 August 2015**

**14:15-15:15**

**2nd Floor Seminar Room**

***Emergent large N matrices from a nonlocal spin system***

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**Abstract**

Large N matrices underpin the best understood models of emergent spacetime. We suggest that large N matrices can themselves be emergent from simple quantum mechanical spin models with finite dimensional Hilbert spaces. Specifically, we start with a nonlocal "Ising" model and transform this into a matrix integral. As a result, we find an example of a nontrivial emergence of a continuous symmetry group from a discrete one, in the large N limit. Furthermore, we can use the well-known mechanics of solving matrix integrals to study the properties of the original spin system. We verify our analytic results by Monte Carlo simulation.

