

Abstract: Quantum mechanical theories describing large N by N matrices of oscillators can lead to an emergent space as $N \rightarrow \infty$. In the most fully fledged version, the emergent space is dynamical and gravitating. However, there are also simpler, lower dimensional versions of this phenomenon. One of the simplest occurs in the so-called quantum Hall matrix model, in which a 2 dimensional space emerges and supports Chern-Simons dynamics. I will describe how this solvable model leads to insights about the emergence of space from matrices. In particular, I will describe how the emergent spatial locality is reflected in the entanglement structure of the ground state of theory.