

Larus Thorlacius: Probing emergent geometry in free vector and matrix models

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Boundary correlation functions provide insight into the emergence of an effective geometry in higher spin gravity duals of $O(N)$ or $U(N)$ symmetric field theories. On a compact manifold, the singlet constraint leads to nontrivial dynamics at finite temperature and large N phase transitions even at vanishing 't Hooft coupling. At low temperature, the leading behavior of boundary two-point functions is consistent with propagation through a bulk thermal AdS space.

Above the phase transition, the two-point function shows significant departure from thermal AdS space and the emergence of localized black hole like objects in the bulk.