Friday 9/15

Speaker: Fabian Essler

Title: Statistics of matrix elements in integrable models

Abstract: I consider the statistics of matrix elements of local operators in the basis of energy eigenstates in a paradigmatic integrable many-particle quantum theory, the Lieb-Liniger model of bosons with repulsive delta-function interaction. Using methods of quantum integrability I determine the scaling of matrix elements with system size. As a consequence of the extensive number of conservation laws the structure of matrix elements is fundamentally different from, and much more intricate than, the predictions of the eigenstate thermalization hypothesis for generic models. I report an interesting connection between this structure for local operators in interacting integrable models, and the one for local operators that are not local with respect to the elementary excitations in free theories.