

Talk 9, 14:00–

## **Hidden symmetry in exact dynamics of one-dimensional quantum systems**

Yoshio Kuramoto (Tohoku University)

The presence of symmetry leads to a corresponding conservation law, and makes it possible in fortunate cases to derive exact results. In interacting one-dimensional systems, however, such useful symmetry is quite often hidden. Even though realistic systems do not have the exact symmetry, the solution in the idealized model is useful like the non-interacting electron model for metals. We discuss in this context the Yangian symmetry and the supersymmetry, combination of which leads to exact dynamical solution of the supersymmetric t-J model with a long-range interaction. The model reduces in the high-density limit to a variant of the Heisenberg spin chain, often called the Haldane-Shastry model. We discuss characteristics of dynamics and thermodynamics, including comparison with Takahashi's exact solution for the Heisenberg chain.