

**Speaker: Bin GUI (Tsinghua University, China)**

**Title: The sewing-factorization theorem and a Verlinde formula for  $C_2$ -cofinite self-dual VOAs**

**Abstract:** For  $C_2$ -cofinite (self-dual) rational VOAs, the sewing-factorization theorem and the Verlinde formula is now a rigorous mathematical theorem by many people (Zhu, Huang, Damiolini-Gibney-Tarasca, G., etc.). Much less is known if the VOA is  $C_2$ -cofinite but irrational. In this talk, I will present a version of sewing-factorization theorem for  $C_2$ -cofinite VOAs. I will explain how this framework leads to a non-semisimple Verlinde formula (assuming that certain VOA modules are rigid). Our results confirm some of the conjectures by Gainudtsov-Runkel. This is joint work with Hao Zhang.