

**Poster-2-25****Dimensional crossover in weakly-coupled chains**

Lorenzo Pizzino and Thierry Giamarchi

*University of Geneva*

We study the dimensional crossover from one dimension (1D) to quasi-1D that occurs, as a function of temperature, if we weakly couple 1D chains made of interacting particles, bosons or fermions. If temperature is too high, the effect of a small transverse coupling is washed out by thermal fluctuations, meanwhile, for small temperatures, it affects the system by opening a gap in the spectrum. The situation is enriched with interactions and by means of Tomonaga-Luttinger theory we completely describe the low-energy excitations of any 1D interacting system. Moreover, we also consider a Renormalization group approach and Bethe Ansatz to address the interplay of interactions and the inter-chain coupling.