Speaker: **Óscar Dueñas Sánchez, Universität Salamanca**

Title: **Dynamical behaviour of density correlations across the chaotic phase for interacting bosons**

Date: **Friday, May 8, 11 am (s.t.).**

Place: **Seminar room 915**

Abstract: **Dynamical behaviour of density correlations across the chaotic phase for interacting bosons**

We study the dynamical manifestation of the chaotic phase in the time-dependent propagation of experimentally relevant two-particle correlations for one-dimensional interacting bosons. By means of a conveniently defined correlation transport distance (CTD), we are able to characterize unambiguously the extension of the chaotic phase and to show that this chaotic phase induces the emergence of an effective diffusive regime in the asymptotic temporal growth of correlation transport as encoded through the CTD. We also investigate how this diffusive regime can coexist with the always present ballistic transport regime previously reported in the literature when the correlation propagation front is studied. This allowed us to observe how the onset of chaos reshapes the correlation profiles, alters the propagation front and velocity, and modifies both the decay of the first correlation maximum and the long-time saturation values. All these results have extended our comprehension of correlation transport beyond standard and naive light-cone pictures.