

Tuesday 12 July 2022: 14h30-15h10.

Alexander Van Werde

Title: Spectra of random matrices with Markovian dependence and non-constant variance profile.

Abstract: The famous Wigner semicircle law describes the spectrum of a random matrix whose entries are independent and all have the same variance. In this talk I will describe recent research extending upon this result in two directions. First, what universal laws applies for random matrices with non-constant variance if we assume independent entries? Second, what can be done if the entries are not independent? Particular emphasis will be put on matrices generated by so-called block Markov chains which occur in certain community detection algorithms. I will outline how a coupling argument allows one to establish that the universal laws also apply in this dependent setting.

This talk is based on the preprint 'Singular value distribution of dense random matrices with block Markovian dependence' which may be found at arxiv.org/abs/2204.13534 .