Capacity of graphs over non-Archimedean ordered fields

Anna Muranova

We introduce and study the notion of capacity of a vertex for infinite graphs over non-Archimedean fields. In this talk we present its connection to minimization of the energy, solutions of the Dirichlet problem and existence of a Green's function. In contrast to graphs over the real field monotone limits do not need to exist. Thus, in our situation next to positive and null capacity there is a third case of divergent capacity and we show that the type of capacity does not depend on the choice of a vertex. Moreover, we discuss the existence of positive superharmonic functions for the Laplace operator.

The talk is based on join works with Florian Fischer, Matthias Keller and Noema Nicolussi.