

Colloquial talk take place at the Institute of Mathematics and Statistics, No.8 building within the Faculty of Science, Kotlarska 2, Brno

Time and place: **December 6, 4pm**, lecture hall **M1**

Aleksey Kostenko (Vienna/Ljubljana)

On Infinite Quantum Graphs

Abstract:

The notion of quantum graph refers to a graph considered as a one-dimensional simplicial complex and equipped with a differential operator (“Hamiltonian”). From the mathematical point of view, quantum graphs are interesting because they are a good model to study properties of quantum systems depending on geometry and topology of the configuration space. They exhibit a mixed dimensionality being locally one-dimensional but globally multi-dimensional of many different types.

We will review basic spectral properties of infinite quantum graphs (graphs having infinitely many vertices and edges). In particular, we will discuss recently discovered fruitful connections between quantum graphs and discrete Laplacians on graphs.

Aleksey Kostenko is a renown expert in spectral theory, publishing in journals like *Inventiones* (2016) and his standard collaborators include Gerald Teschl of Vienna.