Resonances in quantum graphs, their generalizations and magnetic field effects

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In this talk I am going to reviw recent results about on resonances in quantum graphs, standard and generalized, obtained in collaboration with Brian Davies and Jiří Lipovský. We will show how resonances appear frequently in such systems. Then we will discuss high-energy behaviour of the resonances and present conditions under which they exhibit a non-Weyl semiclassical behavior. Furthermore, we will investigate resonances in generalized quantum graphs, sometimes dubbed "hedgehog manifolds". Finally, we will give examples showing how magnetic fields can influence the resonance behaviour.

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