

Hagen-Wuppertal Analysis Treffen

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Pavel Kurasov:

Ambartsumjan-type theorem for quantum graphs

Classical Ambartsumjan theorem states that the spectrum of a Schrödinger operator on an interval coincides with the spectrum of the Laplacian if and only if the potential is zero, provided Neumann boundary conditions are assumed at the end points. This theorem laid a basis for the inverse spectral theory of the one-dimensional Schrödinger operator. We are going to present several generalisations of this theorem for quantum graphs. Our main focus will be on geometric version of such theorems. It appears that the theory of almost periodic functions play a major role, allowing for example to prove that a spectrum of a Schrödinger operator on a metric graph  $\Gamma_1$  is asymptotically close to the spectrum of the a Schrödinger operator on a may be different metric graph  $\Gamma_2$  is and only if the Laplacians on  $\Gamma_1$  and  $\Gamma_2$  are isospectral.