RT-Symmetric Laplace Operators on Star-Graphs: Real Spectrum and Self-Adjointness

RT – symmetric Laplace operators on star graphs with N edges are constructed using the method of point perturbation. We look for operators L satisfying the following condition \( RTL = LRT \), where \( R \) is the rotation operator and \( T \) is the complex conjugation. We construct a particular family of RT-symmetric operators \( LA \) and study whether all such operators with \( N \) real eigenvalues are self-adjoint or not. If \( N \) is odd then every such RT – symmetric operator is self-adjoint. If \( N \) is even, then there exist RT-symmetric operators that are not self-adjoint.

Advisor: Pavel Kurassov
Degree project 30 credits in Mathematics 2009
Department of Mathematics, Lund University