

References for Fat Graph Theorem

Analytic core (one edge):

Hassell, Mazzeo, Melrose (1995): $\det \Delta$, Ψ DO calculus
Cappell, Lee, Miller (1996): Clutching construction

Neumann boundary conditions:

Colin-de-Verdière (1986)
Freidlin, Wentzell (1993): probabilistic perspective
Saito (2000)
Rubinstein, Schatzmann (2001): curved tubes
Kuchment, Zeng (2001, 2003): different shrinking rates
Exner, Post (2005,2007): manifolds, different shrinking rates

General boundary conditions:

Post (2005): Dirichlet, 'small' vertex neighborhoods (de-coupling)
Molchanov, Vainberg (2006,2007): first identify matching conditions
G. (2007)
G., Jerison (2007): one edge, application to nodal line
Dell'Antonio, Costa (2010)

Some references

Variable thickness, no ends:

G., Jerison (1996,1998): very low regularity, convex

Friedlander, Solomyak (2007): limited smoothness, 2 terms

Borisov, Freitas (2007,2009): C^∞ , full asymptotics

Freitas (2007): triangle, 2 terms

Other models:

Cacciapuoti, Exner (2006)

Dell'Antonio, Tenuta (2006): confinement by potentials

Albeverio, Cacciapuoti, Finco (2006): bent waveguide, Dirichlet

Cacciapuoti, Finco (2008): bent waveguide, Robin conditions

Exner, Post (2008): potential on vertex neighborhoods gives δ

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Some problems

- Do all combinations of free/decoupled matching conditions occur?
- Higher dimensions: Quantum simplicial complexes?
- Asymptotics of $\det \Delta$ for fat graph
- Fat graphs with curved edges