Dissertation Defense

The Laplace and Heat Operators on Quantum Graphs

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Abstract: This presentation will introduce general strategies, techniques, and results for differential operators on quantum graphs. The focus of the talk will be on new results presented in my doctoral dissertation. The first result is a sharp diameter bound on the spectral gap for quantum graphs. Followed by a new technique for bounding the heat kernel on quantum graphs and several bounds for the heat kernel. Finally, I will present an original equation and derivation of the mean value theorem for the heat equation on quantum graphs and give a bound for the mean value theorem.

Thursday, March 24, 2022, 3:00 pm
Emerson E363

Advisor: David Borthwick

Mathematics
Emory University