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Erica K Swindle* (eswindle@wlu.edu), **Jon Harrison** and **Mark Sepanski**. *Quantum Cayley Graphs of Finite Groups*.

Quantum graphs are often used to model quantum mechanics in systems with complex geometry. We are interested in investigating the spectra of quantum Cayley graphs of finitely generated groups which incorporated an irreducible representation of the symmetry group in the vertex matching conditions. A secular equation, which encodes the spectrum, is derived for an arbitrary irreducible representation of a general finite group. (Received September 16, 2019)