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Ram Band, Gregory Berkolaiko and Tracy Weyand* (tracy_veyand@baylor.edu). *Critical Points in the Spectrum of Infinite Periodic Graphs.*

We consider infinite periodic graphs Γ that are formed by translating infinitely many copies of a fundamental domain G . We are interested in the spectrum of the Schrödinger operator acting on the graph Γ . According to Floquet-Bloch theory, we can find this spectrum by calculating the spectrum of the magnetic Schrödinger operator acting on a fundamental domain G and then taking the union over the Brillouin zone, which is the set of all possible magnetic fluxes.

Therefore, we can consider each eigenvalue as a function of magnetic flux, and we are interested in where critical points occur. While most critical points occur on the boundary of the Brillouin zone, counterexamples have shown that this is not always true. We will show that if the fundamental domain is a tree and the eigenvalue is generic, then the critical points will occur on the boundary. (Received September 16, 2016)