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Richard W Kenyon*, Mathematics Dept., 151 Thayer St, Providence, RI 02912. *Spectrum of the Laplacian on periodic and quasiperiodic planar graphs.*

The spectrum of the discrete Laplacian on quasiperiodic planar graphs is studied via approximation by periodic graphs. For periodic graphs, there is a complete characterization of Laplacian spectra in terms of Harnack curves. These curves have well-controlled limits as the period increases. Some consequences for probability models on quasiperiodic planar graphs will be discussed. (Received June 28, 2011)