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**Elena Fuchs\*** ([efuchs@math.ias.edu](mailto:efuchs@math.ias.edu)), School of Mathematics, Institute for Advanced Study,  
Einstein Drive, Princeton, NJ 08542. *Counting primes in Apollonian circle packings.*

Integral Apollonian circle packings, in which all circles have integer curvature, are a prime example of the importance of expander graphs in number theory. We'll see how results of Bourgain, Gamburd, and Sarnak about expander graphs and the affine sieve apply to finding asymptotics for the number of circles of prime curvature, as well as pairs of tangent circles of prime curvature in ACP's. The relevant expander graph property, combined with an analog of the chinese remainder theorem in this example, give an experimentally supported heuristic for these counts. This is joint work with K. Sanden. (Received September 14, 2010)