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Jordan S Ellenberg* (ellenber@math.wisc.edu), 480 Lincoln Drive, Madison, WI 53706, and
Christopher J Hall and **Emmanuel Kowalski**. *Expander graphs, gonality, and Galois representations*.

We show that 1-parameter families of abelian varieties over a number field K have few fibers over bounded-degree extensions of K whose mod- p Galois representations have "unexpectedly small image." This generalizes known results about elliptic curves and answers a question of Masser. The truth of the result is not surprising, but the method of proof is (to us) – the theorem uses in a central way new results on expansion in Cayley graphs of linear groups over finite fields due to Helfgott, Gill, Pyber-Szabo, Breuillard-Green-Tao, Golsifedy-Varju, etc. (Received September 19, 2010)