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Alexander Teplyaev* (teplyaev@math.uconn.edu), Department of Mathematics, University of Connecticut, Storrs, CT 06269-3009. *Spectral self-similarity on a group*. Preliminary report.

We show that there is a direct link between spectral analysis on a Hanoi towers group, recently investigated by Grigorchuk and Sunik, and the spectral decimation results for the Sierpinski gasket. As a consequence one can obtain a complete description of eigenfunctions on the Schreier graphs of the Hanoi Towers-3 group, and also establish convergence of the renormalized group Laplacian to the well studied Laplacian on the Sierpinski gasket. On the other hand, one can obtain spectral decimation for the Laplacian on the Sierpinski pre-gaskets via Strichartz's method of averages. This is a joint work with Rostislav Grigorchuk. (Received August 30, 2006)