Infinitely Robust Order and Local Order-Parameter Tulips in Apollonian Networks with Quenched Disorder C. NADIR KAPLAN, Brandeis University, MICHAEL HINCZEWSKI, Technical University of Munich, A. NIHAT BERKER, Koç University — For a variety of quenched random spin systems on an Apollonian network, including ferromagnetic and antiferromagnetic bond percolation and the Ising spin glass, we find the persistence of ordered phases up to infinite temperature over the entire range of disorder.[1] We develop a renormalization-group technique that yields highly detailed information, including the exact distributions of local magnetizations and local spin-glass order parameters, which turn out to exhibit, as function of temperature, complex and distinctive tulip patterns. [1] C.N. Kaplan, M. Hinczewski, and A.N. Berker, arXiv:0811.3437v1 [cond-mat.dis-nn] (2008).

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