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Level spacing statistics for quantum k-core percolation L. CAO, J.M. SCHWARZ, Syracuse University — Quantum percolation is the study of hopping transport of a quantum particle on randomly diluted percolation clusters. Quantum k-core percolation is the study of quantum transport on k- core percolation clusters where each occupied bond must have at least k occupied neighboring bonds. Within the random phase approximation, we found a random first-order phase transition for the k-core conduction transition on the Bethe lattice, and p_q, the quantum percolation critical probability, is equal to p_c, the geometric percolation critical probability [Phys. Rev. B **82**,104211 (2010)]. To further test this result, we numerically compute the level spacing distribution as a function of occupation probability p and system size. The simulation results provide confirmation for the existence of a discontinuous onset of quantum conduction at $p_q = p_c$.

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