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Two-dimensional quantum percolation with binary non-zero hopping integrals BRIANNA DILLON THOMAS, HISAO NAKANISHI, Purdue Univ — In a previous work [Dillon and Nakanishi, Eur.Phys.J B 87, 286 (2014)], we calculated the transmission coefficient of the two-dimensional quantum percolation problem and mapped out in detail the three regimes of localization, i.e., exponentially localized, power-law localized, and delocalized which had been proposed earlier [Islam and Nakanishi, Phys.Rev. E 77, 061109 (2008)]. We now consider a variation on quantum percolation in which the hopping integral ($V_{diluted}$) associated with bonds that connect to at least one diluted site is non-zero but a fraction of the hopping integral (V_{full}=1) between non-diluted sites. We study the latter model by calculating quantities such as the transmission coefficient and the inverse participation ratio and find the original quantum percolation results to be stable over a wide range of energy. In particular, except in the immediate neighborhood of the band center (where increasing $V_{diluted}$ to just 0.02*V_{full} appears to eliminate localization effects), increasing $V_{diluted}$ only shifts the boundaries between the 3 regimes but does not eliminate them until the $V_{diluted}$ reaches 20

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