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**Metal-Insulator Transition and Coulomb Gap: A Real-Space Dynamical Mean-Field Study of the Anderson-Hubbard Model**[1] YUN SONG, W.A. ATKINSON, R. WORTIS, Department of Physics & Astronomy, Trent University, 1600 West Bank Drive, Peterborough, Ontario, Canada K9J 7B8 — The interplay between disorder and electron interactions in the two-dimensional paramagnetic Anderson-Hubbard model is studied by real-space dynamical mean-field theory (DMFT) with a Hubbard- I solver. At half-filling, the Mott gap evolves into a Coulomb- like gap with power law energy dependence $|E - E_F|$, suggesting a Mott insulator to Anderson insulator transition as a function of disorder. Away from half filling for strong interactions and disorder, we find a negative density of states (DOS) anomaly at the Fermi level that is distinct from the Mott gap. Far from half-filling, we obtain a positive DOS anomaly at the Fermi level. While this positive anomaly is consistent with paramagnetic mean-field calculations, the negative anomaly near half filling is a feature unique to strong correlation physics.

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