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Insulator-Insulator Transitions in an Ionic Hubbard Model ARA GO, GUN SANG JEON, Seoul National University — We study the ionic Hubbard model in one and two dimensions at zero temperature. As the Hubbard interaction is increased, the system is known to evolve from a band insulator to a Mott insulator. The former phase is induced by the alternating on-site potential energy while the strong local Hubbard interaction drives the system towards correlated Mott insulator. In order to examine the transition nature, we perform the cellular dynamical mean-field calculation with an exact diagonalization technique employed as an impurity solver. From the computed local density of states we estimates the spectral gap as the interaction strength is varied. We also calculate the momentum-dependent density of states which exhibits characteristic features for different phases.

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