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States induced in the single-particle spectrum by infinitesimal doping of a Mott insulator MASANORI KOHNO, International Center for Materials Nanoarchitectonics, National Institute for Materials Science, Japan — Doping a Mott insulator induces states in the Mott gap in the single-particle spectrum. The general relationships between the doping-induced states in the small-doping limit and the magnetically excited states of the Mott insulator are clarified by considering the quantum numbers and the overlaps between the states [1]. By using the t - J ladder model, the characteristic features of the doping-induced states in the small-doping limit are concretely demonstrated [1]. The features imply that the Mott transition is characterized by freezing of the charge degrees of freedom while the spin degrees of freedom remain active, which is consistent with the results for the Mott transition in the one- and two-dimensional Hubbard and t - J models [2–5]. [1] M. Kohno, Phys. Rev. B 92, 085129 (2015). [2] M. Kohno, Phys. Rev. Lett. 105, 106402 (2010). [3] M. Kohno, Phys. Rev. Lett. 108, 076401 (2012). [4] M. Kohno, Phys. Rev. B 92, 085128 (2015). [5] M. Kohno, Phys. Procedia 75, 206 (2015).

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