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**Origin of Variety of Low-Energy “Competing” States Including d-form Factor Density Waves in Cuprates** WEI-LIN TU, Doctoral Candidate, Department of Physics, National Taiwan University, TING-KUO LEE, Director, Institute of Physics, Academia Sinica — One of the most puzzling facts about the cuprate high temperature superconductors is the observation of a variety of low-energy states in coexistence with the superconductivity and/or antiferromagnetism in the underdoped regime. These states could have a unidirectional charge density wave like structure or a bidirectional checkerboard structure. Some of them like the stripe state could also have an intertwined charge density and spin density waves together. Can all these different states caused by different mechanisms and competing with the superconducting state? Can these states also be consistent with the recently observed d-form factor density wave in cuprates? In this talk we will present reasons to show that these states are all originated from the same strong correlation inherent in the cuprates.

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