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Intertwined Orders in the Emery Model for the Cuprates ETTORE VITALI, California State University Fresno, ADAM CHICIAK, College of WIlliam and Mary, HAO SHI, SHIWEI ZHANG, Center for Computational Quantum Physics, Flatiron Institute — Although superconductivity in the Cuprates was observed for the first time more than thirty years ago, a satisfactory theory of the phenomenon is still missing: unraveling the physical mechanism underlying the appearance of a superconducting phase remains one of the biggest challenges in condensed matter physics. Due to the unprecedented increase in the computational power that we witnessed in the last few years, we are now in a unique position to make significant advances: accurate algorithms are now able to accurately study equilibrium states of model hamiltonians, even when the correlations are strong, as it is the case for the Cuprates. We will present mean field and Quantum Monte Carlo results about magnetic order, change order, nematic order and localization in the ground state of the Emery model, a minimal model for the Cuprates.

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