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Partial Kondo screening in geometrically frustrated Kondo lattice systems YUKITOSHI MOTOME, KYOYA NAKAMIKAWA, University of Tokyo, YOUHEI YAMAJI, Rutgers University, MASAFUMI UDAGAWA, University of Tokyo — One of the most important concepts in Kondo lattice systems is competition between the Kondo coupling and the RKKY interaction. The competition leads to a quantum critical point between a magnetically-ordered state and a Fermi liquid state, and furthermore, it is the origin of novel phenomena around the quantum critical point, such as a non-Fermi liquid behavior and a superconductivity. To explore a new quantum phase resulting from the competition, we investigate the ground state of geometrically-frustrated Kondo lattice systems by employing a high-precision variational Monte Carlo simulation. We find that a partially-ordered state, in which a magnetic order and a Kondo spin singlet coexists, emerges between a magnetically-ordered state stabilized by the RKKY interaction and a Kondo spin liquid state stabilized by the Kondo coupling. We clarified that this new quantum phase is stabilized by quantum fluctuations as well as magnetic anisotropy, and that it is accompanied by a charge disproportionation. Ref. Y. Motome *et al.*, Phys. Rev. Lett. **105**, 036403 (2010).

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