Magnetic charge order in kagome spin ice with dipolar interactions[1] GIA-WEI CHERN, University of Wisconsin - Madison, PAULA MELLADO, OLEG TCHERNYSHYOV, Johns Hopkins University — Dipolar interactions in spin ice are described most effectively in terms of magnetic charges residing on the dual lattice [1]. While spin ice on the pyrochlore lattice contains no magnetic monopoles at low temperatures, spin ice on kagome [2] contains a unit magnetic charge (± 1) on every triangle. With the aid of Monte-Carlo simulations, we show that long-range Coulomb interaction between the monopoles lifts the degeneracy of the spin-ice states and induces a phase transition into a state with ordered magnetic charges but no spin order. The residual entropy is reduced from the spin-ice value but remains extensive. The phase transition is continuous with critical exponents close to the two-dimensional Ising universality class. [1] C. Castelnovo, R. Moessner, and S. L. Sondhi, Nature **451,** 42 (2008). [2] A. S. Wills, R. Ballou, and C. Lacroix, Phys. Rev. B **66**, 144407 (2002).

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