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Effective electromagnetism in rare-earth pyrochlore oxides HAN YAN, LUDOVIC JAUBERT, OWEN BENTON, NIC SHANNON, Okinawa Institute of Science and Technology — Rare-earth pyrochlore oxides show a fabulously diverse range of different forms of magnetism, including both classical and quantum spin-liquid phases. Here we develop a unified picture of ordered and disordered states in a pyrochlore magnet with anisotropic exchange interactions. We find that the great majority of these phases can be understood in terms of a simple classical field theory, reminiscent of electromagnetism.

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