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Exact Solutions for Extreme Black Hole Magnetospheres MARIA J. RODRIGUEZ, ALEXANDRU LUPSASCA, ANDREW STROMINGER, Harvard University — Plasma-filled magnetospheres can extract energy from a spinning black hole and provide the power source for a variety of observed astrophysical phenomena. These magnetospheres are described by the highly nonlinear equations of force-free electrodynamics, or FFE. Typically these equations can only be solved numerically. In this talk I will explain how to analytically obtain several infinite families of exact solutions of the full nonlinear FFE equations very near the horizon of a maximally spinning black hole, where the energy extraction takes place.

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