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Energy extraction from electrostatic black holes.

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This work explores the extraction of energy from electrostatic black holes through the decay or splitting of electrically charged particles. We establish the energetic criteria for viable extraction, deriving a general expression for the efficiency that depends on black hole and particle parameters. Focusing on Reissner-Nordström (RN) and Reissner-Nordström-de Sitter (RNdS) black holes, we analyze scenarios with non-vanishing particle angular momentum. Notably, the RNdS case reveals two distinct energy extraction regions: the generalized ergosphere and a cosmological ergosphere induced by the cosmological horizon. Under specific conditions, these ergospheres merge, enabling energy extraction throughout the whole region between the event and cosmological horizons.

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