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Electromagnetic extraction of energy from merging black holes

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We calculate the evolution of the prompt intrinsic Poynting power generated by merging black holes. Orbiting black holes induce rotation of the space-time. In a presence of magnetic field supported by an accretion disk outside of the orbit, this results in a generation of an electromagnetic outflow via the Blandford-Znajek-type process with luminosity $L_{EM} \sim G^3 M^3 B^2 / (c^5 R_{orb})$ and reaching a fairly low maximum values of $L_{EM} = 10^{37}-10^{39} \text{ m}_6 \text{ erg s}^{-1}$ (m_6 is the masses of black holes in millions of Solar mass) at the time of the merger.

Dissipation of the wind power may produce two types of observed signatures: a highly variable collimated emission coming from the internal dissipation within the jets and a broad-band near-isotropic emission generated at the termination shocks.

Subjects: **High Energy Astrophysical Phenomena (astro-ph.HE)**; General Relativity and Quantum Cosmology (gr-qc)

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