

Asymptotic electromagnetic field of a charged particle, radially falling onto a Schwarzschild black hole

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We determine multipole coefficients of electromagnetic field for charged particle, radially falling into Schwarzschild black hole by approximating the Regge-Wheeler potential by the Dirac delta-function. Considering the limit when the particle is approaching the event horizon of the black hole we show analytically that all multipoles except for the monopole vanish exponentially fast.

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