Abstract Submitted
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Measurement and Simulation of the Electric Current in a kpc-Scale Jet P.P. KRONBERG, University of Toronto, R.V.E. LOVELACE, Cornell University, S.A. COPLGATE, LANL, GIOVANNI LAPENTA, KU Leuven — We present radio emission, polarization, and Faraday rotation maps of the radio jet of the galaxy 3C303. From these data we derive the magnetoplasma and electrodynamic parameters of this 50 kpc long jet. For one component of this jet we obtain for the first time a direct determination of a galactic-scale electric current (3×1018 A), and its direction-positive away from the active galactic nucleus. Our analysis strongly supports a model where the jet energy flow is mainly electromagnetic.

P.P. Kronberg, R.V.E. Lovelace, G. Lapenta, S.A. Colgate, Measurement of the Electric Current in a Kpc-Scale Jet, Astrophysical Journal Letters, 741, L15, doi:10.1088/2041-8205/741/1/L15, 2011.

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