A Model for the Hot Spots of Cygnus A

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Abstract

Cygnus A was one of the first radio sources to be identified with a galaxy. Radio interferometric measurements have shown that narrow jets transport matter at high velocities from the nucleus of Cygnus A and other radio galaxies. When such jets impact on the intergalactic medium (IGM) two shocks are formed. The first of these shocks is a collisionless shock that forms where the jet terminates. A bow shock is also believed to form in the IGM. The region between these two shocks is called a hotspot. Chandra observations of the hotspots of Cygnus A have recently been reported. In this paper we discuss the production of magnetic fields in the jet and electron acceleration by the jet shock. We briefly compare the Cygnus A measurements with those of Pictor A.

CATEGORY: ACTIVE GALAXIES AND QUASARS