

Abstract Submitted
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Effect of Pressure Anisotropy on Relativistic Slow-Mode Shocks

JASON TENBARGE, University of Iowa, RICHARD HAZELTINE, SWADESH MAHAJAN, University of Texas - Austin — Shock mediated reconnection is a possible source for the high-energy non-thermal emissions observed in astrophysical systems such as pulsars and magnetars, gamma-ray bursts, and active galactic nuclei. In such strongly magnetized environments, strong gyrotropic anisotropy in the pressure is expected to occur due to synchrotron emission and various instabilities. A newly developed covariant fluid model¹ for magnetized plasmas, incorporating pressure anisotropy but neglecting heat flow, is used to study Petschek type reconnection in a pair plasma governed by slow-mode shocks. The plasma parameters are found to be strongly modified by anisotropy on both sides of the shock.

¹J. M. TenBarge, R. D. Hazeltine, and S. M. Mahajan, *Phys. Plasmas* **15**, 062112 (2008).

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