Corrections to Linear Hall MHD Arising From Heat Flow and Pressure Anisotropy JASON TENBARGE, SWADESH MAHAJAN, RICHARD HAZELTINE, Institute for Fusion Studies, The University of Texas, Austin, TX — Previous studies of the solutions to linear Hall MHD have neglected heat flow and pressure anisotropy. Although ignoring these quantities is safe in certain limits, in general heat flow and pressure anisotropy have the potential to play major roles in the evolution of a plasma system. Here we present a study of a two-fluid quasineutral, fully-conductive system with the inclusion of electron heat flow and pressure anisotropy. The ions receive the Chew, Golberger, Low treatment (pressure anisotropy but no heat flow). To include the effects of heat flow and pressure anisotropy, we employ appropriate fluid equations, derived previously by Hazeltine and Mahajan (2002). We find corrections to the standard Hall MHD solutions, from which the standard Hall MHD results presented in Ohsaki and Mahajan (2004) are recoverable when the fluid equations decouple from the equations of motion.

References

[1] R. D. Hazeltine and S. M. Mahajan, Phys. Plasmas **9**, 3341 (2002).

[2] S. Ohsaki and S. M. Mahajan, Phys. Plasmas **11**, 898 (2004).

Jason TenBarge
Institute for Fusion Studies, The University of Texas, Austin, Texas