

Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Bremsstrahlung in marginally collisional plasma flows¹ T.E. WEBER, Los Alamos National Laboratory, I.A. BEAN, C.S. ADAMS, Virginia Polytechnic Institute and State University, D.R. WELCH, Voss Scientific, LLC. — Radiative processes in marginally collisional plasmas are complex and are not amenable to many simplifying assumptions commonly made in plasma physics, especially in highly dynamic systems such as shocks. The details of the energy partition between thermal or non-thermal populations, high-energy particles, enhanced magnetic fields, and/or radiation can vary greatly depending on the Magnetosonic Mach number, Knudsen number, Hall parameter, and plasma beta. Kinetic simulations, experiments, analytical scaling, and limiting approximations are used to gain an understanding of radiation emission in this challenging regime. One area of interest is “hard” x-ray emission from 10 – 100 keV; a range that may prove promising for diagnosing the kinetics of high-energy populations and one that is important for the development of laboratory sources such as those fielded on NIF and Z.

¹This work is supported by the U.S. Dept. of Energy, National Nuclear Security Administration. Approved for unlimited release, LA-UR-19-26214.

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Date submitted: 02 Jul 2019

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