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Characterization of Phase Space Energy Transfer in 2-D Collisionless Magnetic Reconnection using Field-Particle Correlations[1] ANDREW MCCUBBIN, GREGORY HOWES, University of Iowa, KRISTOPHER KLEIN, University of Arizona — Magnetic reconnection plays an important role in the energization of particles in collisionless plasmas. We apply a new field-particle correlation technique to explore the energization of ions and electrons in collisionless magnetic reconnection simulations. The goal is to determine the characteristic velocity-space signatures of magnetic reconnection using single-point measurements of the electromagnetic fields and particle velocity distributions. We compare wave-particle energization to energy in bulk flows at specific spatial locations. This work extends a diagnostic suite allowing examination of the phase space energy budget of 2-D Gyrokinetic magnetic reconnection simulations. Understanding the entire phase space energy budget in single point measurements may provide novel insight leading to spacecraft measurement techniques to identify particle energization due to magnetic reconnection.

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