

Abstract Submitted  
for the DPP13 Meeting of  
The American Physical Society

**Radiation production by and transport of non-relativistic particles in plasmas with sub-Larmor-scale magnetic fields<sup>1</sup>** B. KEENAN, MIKHAIL MEDVEDEV, U. Kansas — Plasma turbulence often has sub-Larmor-scale magnetic field fluctuations. Particle diffusion of and radiation production by ultra-relativistic particles has been explored earlier. In particular, it was shown that jitter radiation theory replaces synchrotron radiation one. The spectral characteristics and particle diffusion coefficient were shown to be intimately related. Here we extend these results to non-relativistic particles. In particular, we are interested in spectral characteristic of the emitted radiation. We show that such radiation is drastically different from cyclotron radiation, which is applicable only for nearly homogeneous fields but fails if the field correlation scale is smaller than the particle's Larmor radius. These results can be very valuable for remote diagnostics of laboratory and astrophysical plasmas.

<sup>1</sup>Supported by grant DOE grant DE-FG02-07ER54940 and NSF grant AST-1209665.

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Date submitted: 12 Jul 2013

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