

Abstract Submitted  
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**Regular acceleration in magnetically-driven turbulence** ANDREY BERESNYAK, HUI LI, Los Alamos National Laboratory — Astrophysics and space science knows many examples of magnetically-dominated environments. Often, due to large-scale motions or reconnection the free energy of magnetic field is converted into kinetic motions. We demonstrated that collisionless particles in such environments will be regularly accelerated while experiencing curvature drift. This could be applied, e.g. to the spontaneous reconnection above the solar surface that results in the heating of particles and production of non-thermal tails. Interestingly, the opposite processes, such as dynamo, will actually result in the net cooling of particles by the curvature drift. Being very generic, this acceleration mechanism is likely to be responsible in production of non-thermal particle distribution in many magnetized environments such as pulsar magnetospheres, jets from supermassive black holes, jets from imploding stars, etc.

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