

Abstract Submitted  
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**A Common Spectral Shape for Particles Accelerated in Turbulence and at Shocks** L.A. FISK, University of Michigan — One of the more significant observations in heliospheric physics in recent years has been the ubiquitous suprathermal tails, which appear to have the same spectral index of -5, when expressed as a distribution function. Moreover, this same spectral shape occurs for particles accelerated at the termination shock of the solar wind. A theory is presented for why this unique spectral shape occurs and the implications of this result are discussed for particle acceleration in turbulence and at shocks. It is argued that the particles are stochastically accelerated in compressional turbulence, and that an equilibrium is established when the particles receive energy from and do an equal amount of work on the turbulence. The suprathermal tails are formed by a process analogous to turbulent cascades.

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