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Diffusive shock acceleration in intermittent plasma turbulence

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As in situ plasma observations indicate, the turbulence energy levels in neighboring magnetic tubes of solar wind may differ from each other by more than one order of magnitude. Such an intermittence of coronal and solar wind plasmas can affect energetic particle acceleration in coronal and interplanetary shocks. The new modeling incorporates particle acceleration in the shock front and the particle transport both in parallel to the magnetic field and in perpendicular to the magnetic field directions. The modeling suggests that the perpendicular diffusion is always essential for the energetic particle production, irrespective to the shock's obliquity. The modeling results are compared with data of the ERNE instrument onboard SOHO.