

## **Particle acceleration by relativistic shocks propagating to inhomogeneous media**

It was claimed that relativistic shocks propagating to uniform media cannot accelerate particles efficiently because the shocks are perpendicular shocks. However, in reality the upstream plasma has a finite density fluctuation. The interaction between the upstream density fluctuation and the shock front generates turbulence in the downstream region, so that the downstream magnetic field is strongly disturbed. In this study, by performing a test particle simulation in a relativistic shock with such a downstream magnetic turbulence, we investigate the diffusive shock acceleration in relativistic shocks propagating to inhomogeneous plasmas.

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