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## **Time Evolution of Cosmic Ray MHD Shocks and Their Emissions**

### **Abstract content**

We present results of simulations of the evolution of fully MHD plane shocks including diffusive acceleration of cosmic rays and their backreaction on the shock flow. From the computed particle phase space distributions we compute expected emissions resulting from interactions between the cosmic rays, the thermal particle populations and relevant astrophysical photon fields. The results will be compared to observed properties of collisionless shocks in various astrophysical environments, such as supernova remnants and cosmic structure shocks. This work is supported at the University of Minnesota by NASA and the University of Minnesota Supercomputing Institute and at Pusan National University by KOSEF through the Astrophysical Research Center for the Structure and Evolution of Cosmos (ARCSEC).

**If this papers is presented for a collaboration, please specify the collaboration**

### **Summary**

### **Reference**

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