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Supernova Remnant Evolution with Cosmic Ray Feedback JOSHUA WOOD, DIETER HARTMANN, Clemson University, KEN-ICHI NISHIKAWA, NSSTC — Supernova remnants (SNR) are believed to be the predominant source of galactic cosmic rays (CR). The acceleration of particles in supernova shocks depends on the dynamic evolution of the ejecta and its interaction with the circumstellar environment. The SNR dynamics, in turn, is affected by energy losses due to CR production. We discuss self-consistent treatment of SNR/CR evolution with 3D MHD simulations. We also investigate PIC simulation of the Weibel instability as well as the observational consequences of CR production in the high energy regime.

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