

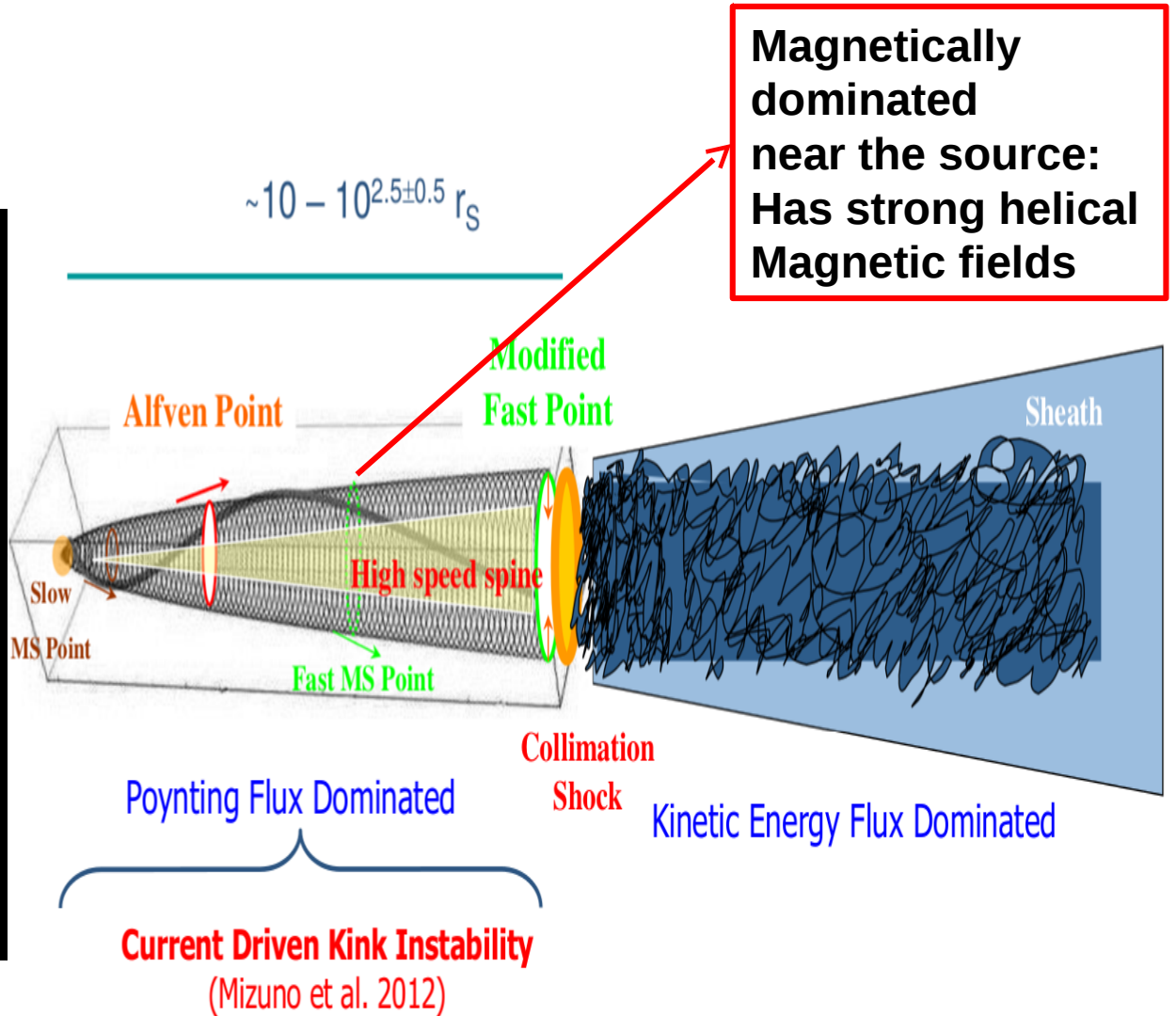
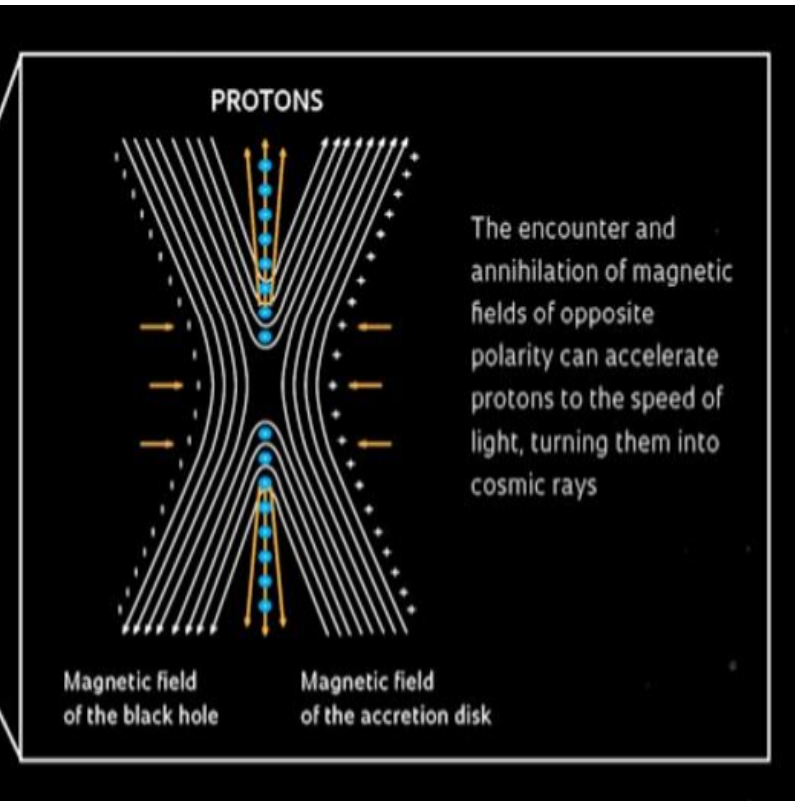
Studies of Cosmic Ray Acceleration in Relativistic MHD Jets

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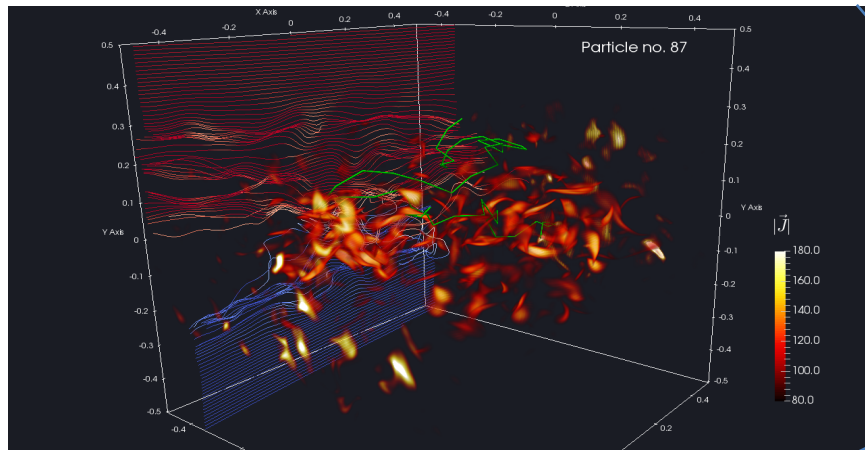
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Acceleration particles by magnetic reconnection

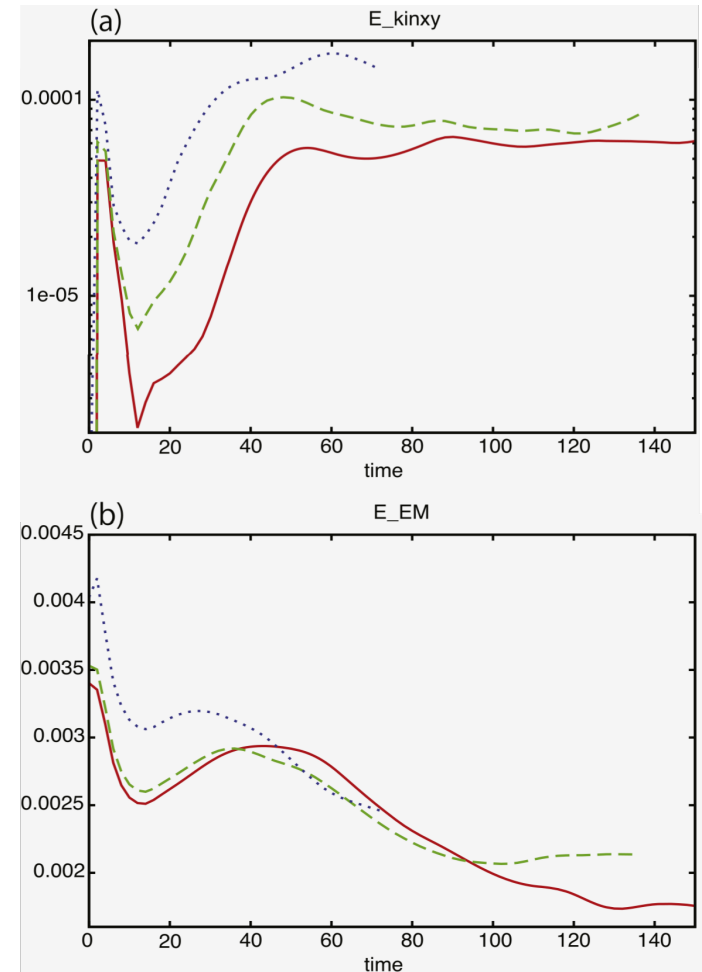
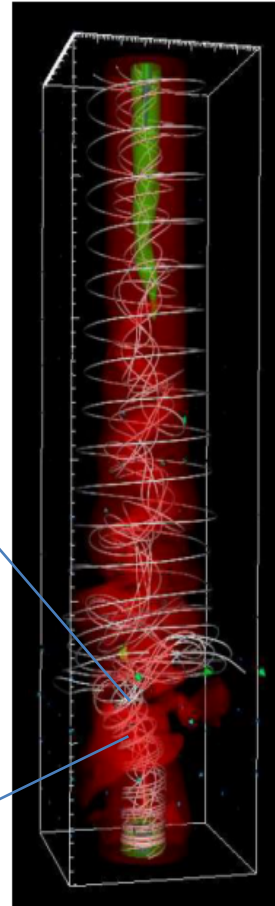


MHD Simulation of Reconnection driven by Kink in Magnetically Dominated Relativistic Jet

Particle acceleration *in situ* in relativistic jets by means of relativistic MHD simulations with thousands of test particles in 3D:
this study is in progress!



del Valle, de Gouveia Dal Pino, Kowal, MNRAS 2016

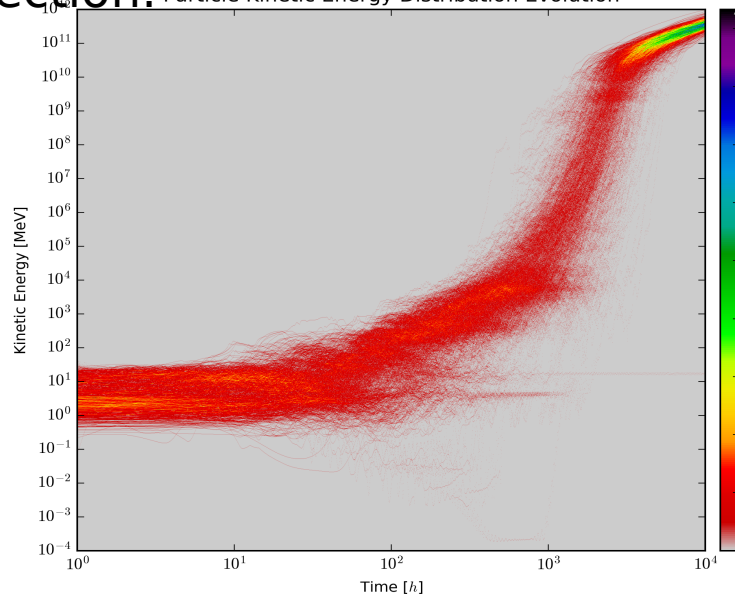


Singh, Mizuno, de Gouveia Dal Pino, ApJ 2016

Preliminary results

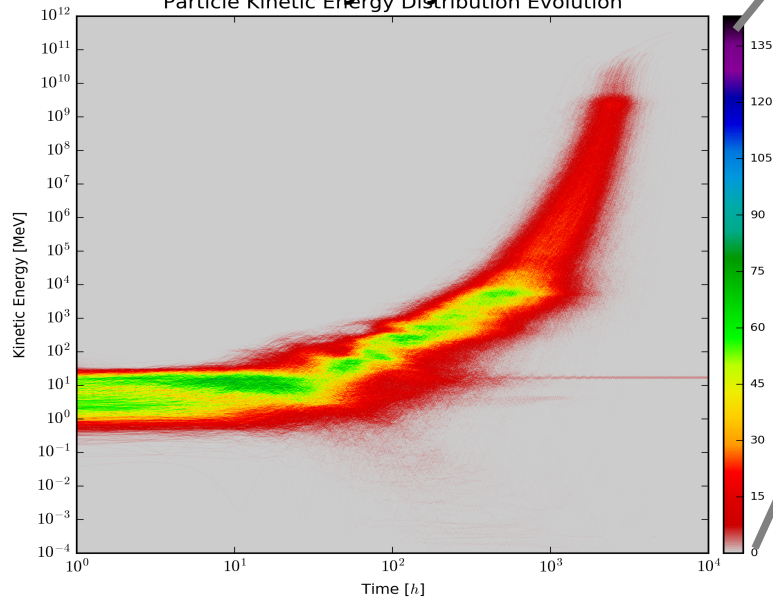
1,000 particles in a periodic boundary

injection: Particle Kinetic Energy Distribution Evolution

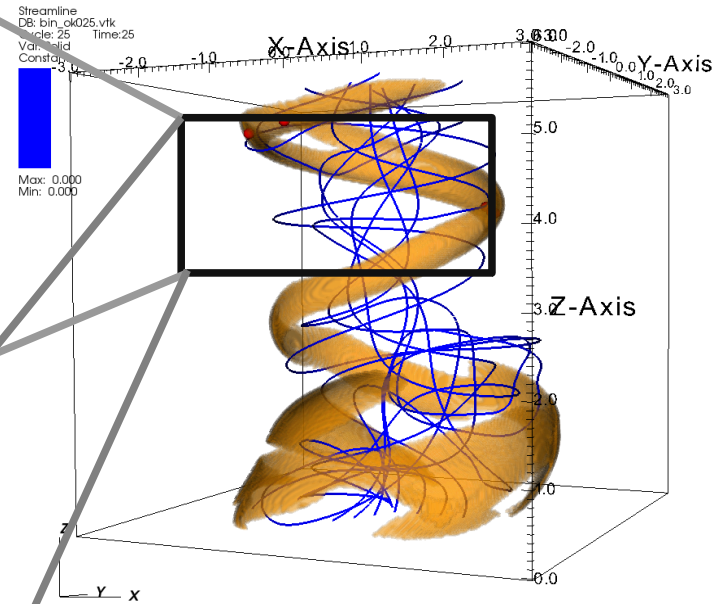


10,000 particles in a periodic and outflow boundary injection:

Particle Kinetic Energy Distribution Evolution



Particle acceleration *in situ* in relativistic jets by means of relativistic MHD simulations with a thousand of test particles in 3D:



The Figure above identifies the sites of reconnection induced by current driven kink instability. We injected the particles in the square region of the jet domain.

This study is in progress!