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Multi-D high resolution simulations of relativistic two-component jets

We will present 2.5D and 3D high resolution numerical simulations done with the grid-adaptive relativistic

AMRVAC code of two component relativistic jets.

Our aim is to investigate the stability of transverse magnetised astrophysical jets. We find evidence for the development of an extended shear flow layer between the two jet components, resulting from the growth of a body mode in the inner jet, Kelvin-Helmholtz surface modes at their original interface, and their nonlinear interaction.

However, we find that the presence of a heavy external jet allows the shear layer further development be slowed down, and the maintenance of a collimated flow.