1 Del Zanna

David Meier

Question It appears that your jet is electromagnetically launched, accelerated and collimated. Is that correct?

My reason for asking is that, as I showed in my talk, magnetically-dominated, Poynting jets should develop helical kinks just like those seen in The Crab and Vela jets – advecting with the flow and not degenerating into full turbulence.

Answer

The driving force is certainly magnetic: When the magnetization in the nebula is high enough, the equitorial flow is diverted towards the axis to form a jet. However in my model the magnetic field is purely toroidal, and thus it must vanish near the axis, so we cannot say that is a Poynting dominated outflow. Inclusion of a poloidal component and 3-D might however explain the observed kinks, though it is not clear how large the field could become near the axis.