

Abstract Submitted  
for the APR10 Meeting of  
The American Physical Society

**Passive, precise plasma jet experiments on the sky**<sup>1</sup> PHILIPP KRONBERG, Los Alamos National Laboratory — The typical plasma parameter space has been established for the most luminous, collimated jets in the Universe. They are magnetically dominated energy pipes produced by super-massive black holes, with energy flows in excess of  $\sim 10^{42}$  erg s<sup>-1</sup>, over supra-galaxy scales. I discuss these jets with examples, and conclude that all current radio telescopes fall short in resolution to provide the important plasma diagnostics in these systems. The solution is within technological reach, if the full imaging resolution of the Enhanced VLA (EVLA) were increased from the current 35 km to a few hundred km. This can be achieved by additional telescopes (*ca.* 6) in the State of New Mexico. The cost of doing this,  $\sim$  \$200M, is modest when matched against the potential benefits to plasma and fusion science.

<sup>1</sup>Supported by the DOE and NSERC (Canada).

Philipp Kronberg  
Los Alamos National Laboratory

Date submitted: 22 Oct 2009

Electronic form version 1.4