Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Inductive acceleration of UHECRs in sheared relativistic jets MAXIM LYUTIKOV, Purdue University — Relativistic outflows carrying large scale magnetic fields have large inductive potential and may accelerate protons to ultra high energies. We discuss a novel scheme of Ultra-High Energy Cosmic Ray acceleration due to drifts in magnetized, cylindrically collimated, sheared jets of powerful active galaxies. The key features of the mechanism are (i) the highest rigidity particles are accelerated most efficiently implying the dominance of light nuclei for extragalactic CRs; (ii) acceleration rate increases with energy and does reach the theoretical maximum of inverse relativistic gyro-frequency.

Maxim Lyutikov
Purdue University

Date submitted: 09 Jan 2009 Electronic form version 1.4