Abstract Submitted
for the APR07 Meeting of
The American Physical Society

Acceleration of highest energy cosmic rays MAXIM LYUTIKOV, Purdue University, RACHID OUYED, University of Calgary — 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 UHECR acceleration due to drifts in cylindrically collimated, sheared extragalactic jets. A particle advected by such a jet is in an unstable equilibrium if $\mathbf{B} \cdot \nabla \times \mathbf{v} < 0$, so that kinetic drift along velocity shear leads to fast, regular energy gain. Acceleration rate does reach absolute theoretical maximum of inverse gyro-frequency. In addition, highest rigidity particles are accelerated most efficiently, implying the dominance of light nuclei at highest energies.

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Date submitted: 07 Jan 2007 Electronic form version 1.4