

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Electron-positron cascade in magnetospheres of spinning black holes¹ ALEX FORD, BRETT KEENAN, MIKHAIL V. MEDVEDEV, U. Kansas — We study the magnetospheres of spinning black holes (BHs) in active Galactic Nuclei (AGN), quasars, blazars and such. It is believed that spinning BHs in ambient magnetic fields develop force-free magnetospheres. Their structure should determine how relativistic jets are launched and how the BH energy is extracted, e.g., via Blandford-Znajek mechanism. The key assumption for the force-free condition is the presence of plasma with the density being above the Goldreich-Julian density. Unlike NSs which can in principle supply electrons from the surface, BH cannot supply plasma at all. The plasma must be generated *in situ* via an electron-positron cascade, presumably in the gap region. Here we study such pair cascade and find the conditions under which it can occur and, hence, AGN and quasar/blazar jets can exist.

¹Supported by grant DOE grant DE-FG02-07ER54940 and NSF grant AST-1209665.

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Date submitted: 09 Jan 2014

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