Abstract Submitted
for the APR09 Meeting of
The American Physical Society

How do Black Holes Rotate in Parity-Violating Gravity? FRANS PRETORIUS, NICOLAS YUNES, Princeton University — General Relativity is a parity-preserving theory, but quantum gravitational theories require that parity be violated, for example through the Green-Schwarz mechanism in String Theory. The unique, leading-order effective theory that captures such parity violation is Chern-Simons modified gravity. In this modified theory, however, the Kerr metric is not a solution, and an exact, strong-field solution that represents rotating black holes is still lacking. In this talk, we summarize the status of the search for rotating black hole solutions in Chern-Simons modified gravity and present some preliminary results of numerical investigations that might lead to the missing solution.

Frans Pretorius
Princeton University

Date submitted: 08 Jan 2009 Electronic form version 1.4