Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Analytic fermionic Green's functions from holography[1] JIE REN,
STEVEN GUBSER, Princeton University — We find an analytically solvable model
that captures essential features of the holographic Fermi surfaces. Both the Fermi
momentum and the Green's function near the Fermi surface are analytically ob-
tained. The geometry descends from type IIB supergravity, where it describes D3-
branes with equal angular momenta in two of the three independent planes of rota-
tion orthogonal to the world-volume. The IR geometry of this extremal two-charge
black hole is conformal to $AdS_2 \times R^3$. There can be several Fermi momenta, and
they take the form $k_F = q - n - 1/2$ (in units of the chemical potential), where q
is the charge of the spinor, and n is a non-negative integer that labels the Fermi
surfaces.

Jie Ren
Princeton University

Date submitted: 15 Jan 2013   Electronic form version 1.4