Properties of a One-Dimensional Dirac Liquid MATTHEW
GOCHAN, Boston College, JAMES STOKES, Boston College/Brookhaven National Laboratory , KEVIN BEDELL, Boston College — Recent experimental results, as well as technological implications, have lead to a resurgence in the analysis
of one-dimensional systems. Of particular interest are the technological advances
possible in one-dimensional systems; specifically carbon nano-tubes and nano-wires.
Here we investigate the properties of a one-dimensional Dirac liquid. We show a
distinct change in the behavior of the exponents of quantities such as the correlation functions, density of states, and momentum distribution function. We find that
these exponents, as well as relevant thermodynamic and transport properties are independent of density. Additionally, we discuss the consequences the Virial Theorem
has on such systems.

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