

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Critical exponents at the unconventional disorder-driven transition in a Weyl semimetal SERGEY SYZRANOV, Univ of Colorado - Boulder, PAVEL OSTROVSKY, Max Planck Institute for Solid State Research, Stuttgart, Germany; L. D. Landau Institute for Theoretical Physics RAS, Moscow, Russia, VICTOR GURARIE, LEO RADZIHOVSKY, Univ of Colorado - Boulder — Disordered non-interacting systems in sufficiently high dimensions have been predicted to display a non-Anderson disorder-driven transition that manifests itself in the critical behaviour of the density of states and other physical observables. Recently the critical properties of this transition have been extensively studied for the specific case of Weyl semimetals by means of numerical and renormalisation-group approaches. Despite this, the values of the critical exponents at such a transition in a Weyl semimetal are currently under debate. We present an independent calculation of the critical exponents using a two-loop renormalisation-group approach for Dirac fermions in $2 + \varepsilon$ dimensions and resolve controversies currently existing in the literature.

Sergey Syzranov
Univ of Colorado - Boulder

Date submitted: 04 Nov 2015

Electronic form version 1.4