Abstract Submitted
for the NWS15 Meeting of
The American Physical Society

Disorder and Defects in Graphene Band Structures JON PARNELL, SINA HABIBIAN, University of British Columbia and Max Planck Institute for Solid State Research, CHRISTIAN AST, Max Planck Institute for Solid State Research, KLAUS KERN, Max Planck Institute for Solid State Research and Ecole Polytechnique Fédérale de Lausanne — Calculating the electronic band structure of graphene provides an important insight into the electrical properties of this 2D carbon-based lattice. Of particular interest here is modelling disorder and defects within the lattice, and their effect on graphene's band structure. This includes varying levels of potential difference within the lattice, as well as varying symmetrical and asymmetrical defects - such as the "585" defect. Through a series of MATLAB scripts, these effects are theoretically modelled using a tight-binding model. Our results include a blurred band "gap"–a result also seen, and speculated upon, experimentally.

Jon Parnell
University of British Columbia and
Max Planck Institute for Solid State Research

Date submitted: 27 Apr 2015 Electronic form version 1.4