



香港浸會大學
HONG KONG BAPTIST UNIVERSITY
FACULTY OF SCIENCE

Department of Physics
&
**Institute of Computational and
Theoretical Studies**
JOINT COLLOQUIUM

**Semi-Dirac, semi-Weyl semi-
halfmetal in oxide nanostructures**

BY

Prof. Warren Pickett

University of California – Davis, and NUS Singapore

Tuesday, December 4, 2012

3:15pm – 4:15pm (Tea will be served)

T909 Science Tower, HK Baptist University

ABSTRACT

The study of the Dirac point in graphene, making it a Weyl semimetal, and its many unusual properties have made 'graphene' one of the most active current topics in condensed matter physics. Oxide nanostructures, in particular those with polar interfaces and proximate polar catastrophe, comprises another vigorous area of current research. Non-polar interfaces are generally more benign. This talk will focus on the discovery of a "semi-Dirac" electronic structure in VO_2/TiO_2 nanoscale heterostructures, where a new type of 2D quasiparticle emerges: linear massless dispersion in one direction, normal massive in the perpendicular direction. Several properties of this semi-Dirac phase will be discussed, and a brief review of subsequent discoveries will be presented.

Collaborators: V. Pardo, S. Banerjee, R. R. P. Singh

All Interested Are Welcome!