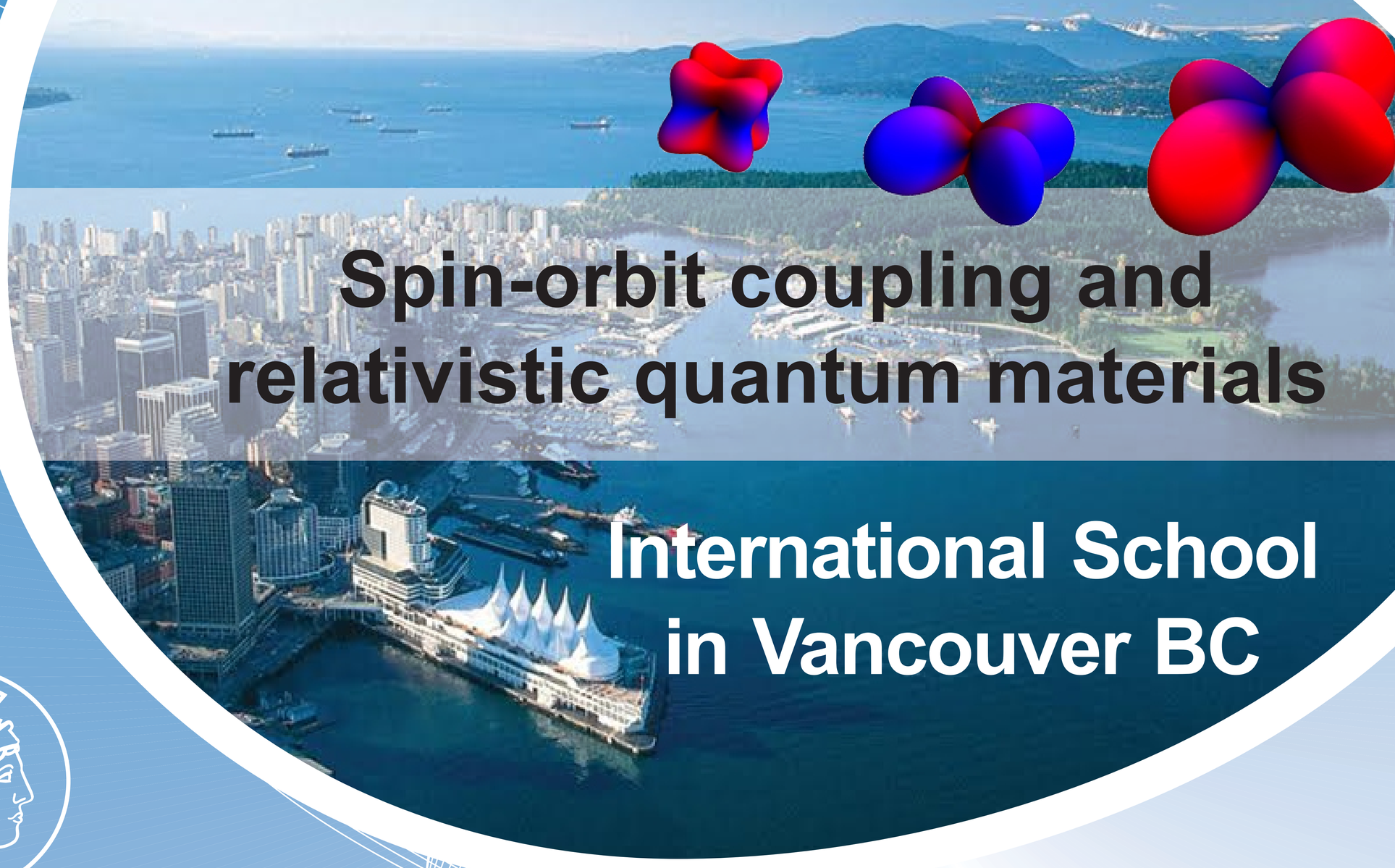

October 22 – 25, 2015

Spin-orbit coupling and relativistic quantum materials

International School in Vancouver BC

This Summer School continues the series of joint international schools by the International Max Planck Research School for Condensed Matter Science and the Max Planck-UBC Center for Quantum Materials in Vancouver.

Scientific Organizers

Andrea Damascelli (UBC Vancouver)
Marcel Franz (UBC Vancouver)
B.J. Kim (MPI for Solid State Research)

Scope

Coupling between motional and spin degrees of freedom of electrons in solids is a genuinely relativistic effect, which leads to a plethora of interesting phenomena and underlies the physics of some of the most exciting quantum materials discovered in recent decades. This includes topological insulators and superconductors, Weyl and Dirac semimetals, and various strongly correlated complex oxides, such as iridates and ruthenates. In a series of pedagogical lectures the summer school will introduce the general concept of spin-orbit coupling in atoms and in solids and then will proceed to describe various classes of materials where these effects are strongly manifested. The school is aimed at graduate students and postdocs working in experiment and theory who possess basic background in condensed matter physics.

Topics and speakers

Spin-orbit coupling from atoms to solid

Marco Grioni (EPFL, Lausanne)
Maurits W. Haverkort (MPI for Solid State Research)

Topological insulators and superconductors

Marcel Franz (UBC, Vancouver)
David Hsieh (Caltech, Pasadena)

Spin-orbit coupling in correlated systems

B.J. Kim (MPI for Solid State Research)
Natalia B. Perkins (University of Minnesota)

New frontiers

James Analytis (UC Berkeley)
N. Peter Armitage (John Hopkins University)
Andrea Damascelli (UBC Vancouver)
Joshua Folk (UBC Vancouver)
Siddharth A. Parameswaran (UC Irvine)
L. Zhao (Caltech, Pasadena)

Contact

B.J. Kim | MPI for Solid State Research | Heisenbergstraße 1
70596 Stuttgart, Germany | E-Mail: bjkim@fkf.mpg.de