



FLEET

ARC CENTRE OF EXCELLENCE IN
FUTURE LOW-ENERGY
ELECTRONICS TECHNOLOGIES

FLEET RESEARCH SEMINAR

Resonant photovoltaic effect in doped magnetic topological materials

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Abstract: The non-linear optical response of clean undoped semiconductors contains a static intrinsic term - the shift current.

We have recently shown that when Kramers degeneracy is lifted, the second order dc response of doped topological materials and semimetals to an ac electric field becomes large at the interband absorption threshold in clean nearly isotropic materials.

We refer to this effect, which results from an interesting interplay between inter-band coherence and intra-band

occupation number response, as the resonant photovoltaic effect (RPE). We evaluate the RPE for a model of the surface states of a Bi₂Te₃ coupled to in-plane magnetic order due to either bulk doping or proximity coupling.

About the Speaker: Associate Professor Dimi Culcer studies theoretically charge and spin transport in topological materials and artificial graphene with strong spin-orbit coupling to understand the criteria for protection against dissipation, including the operational criteria for achieving dissipationless transport in the quantum anomalous Hall effect

DATE: Wednesday 4 September
TIME: 15:00 - 16:00
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