

Workshop on Advanced Spectroscopy and Transport for 2D Materials at Surfaces

Topics : Atomic layer superconductivity, Topological materials, 2D Xene materials, One-dimensional metallic states
Electron transport, New methods

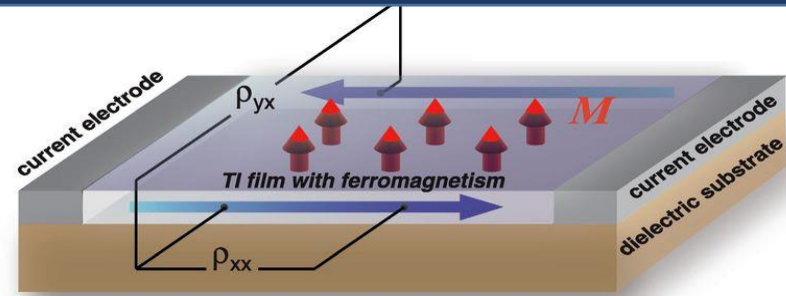
Dates: 13 – 17 September, 2020

Venue: Okinawa Institute of Science & Technology Graduate Univ. (OIST), Okinawa Japan

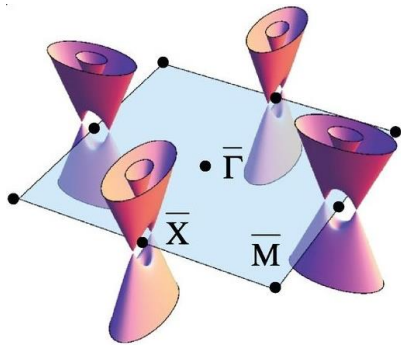


topological materials/superconductivity

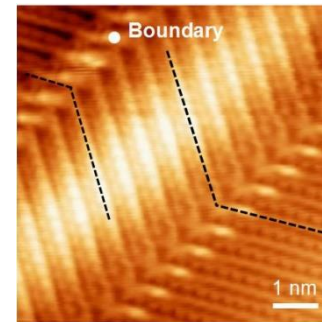
- quantum anomalous Hall effect (Ma)
- antiferromagnetic topological insulator (Chulkov)
- topological crystalline insulator (Okada)
- atomic layer topological insulator (Kim)
- Majorana bound state (Liu)
- magnetic adsorbates on superconductor (Franke)
- theory (Eremeev, Wei)



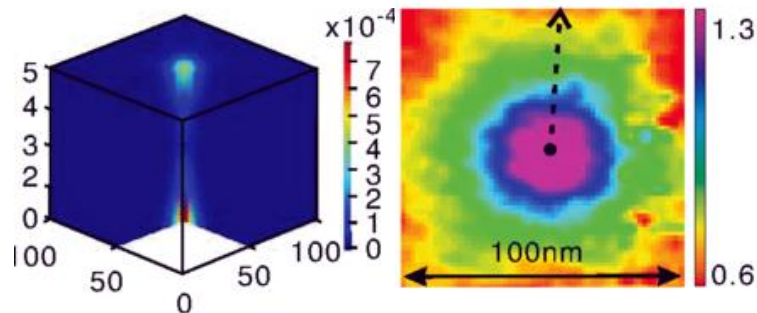
quantum anomalous Hall effect on ferromagnetic TI (Ma)



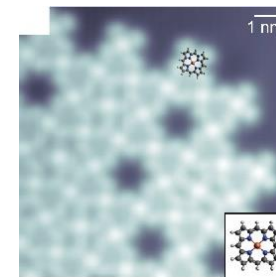
topological crystalline insulator (Okada)



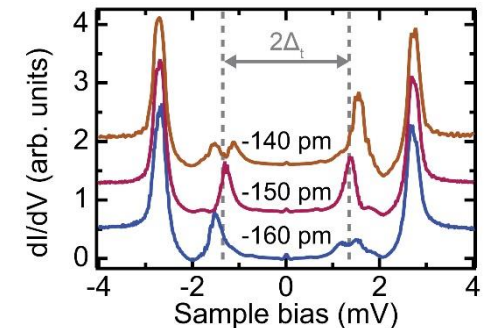
1D topological state @ grain boundary in 2D TI (Kim)



Majorana bound state @ vortex core of TI/superconductor (Liu)

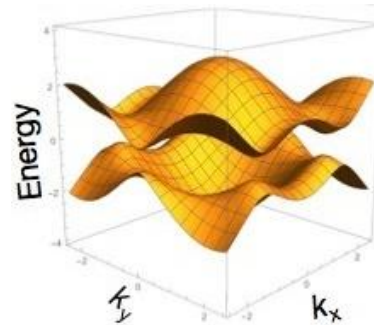
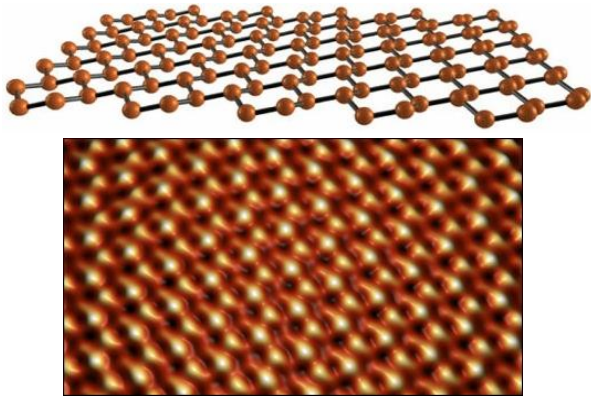


magnetic states on superconductor (Franke)

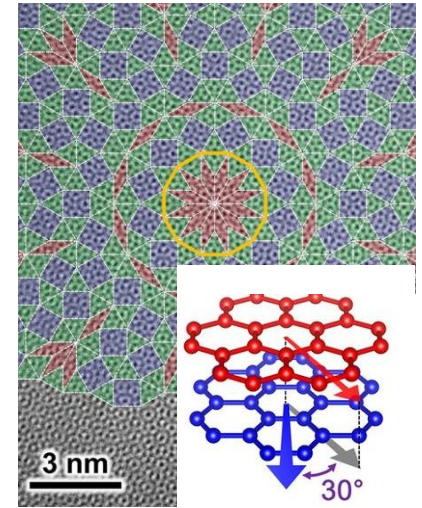
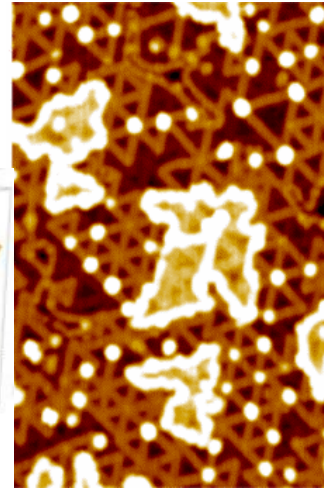


2D Xene materials/1D metal

- graphene (Altman, Ahn, Lanzara)
- inelastic tunneling (Minamitani, Komori)
- silicene (Le Lay), TMD (Tegenkamp, Tok)
- 1D chiral soliton (Yeom)

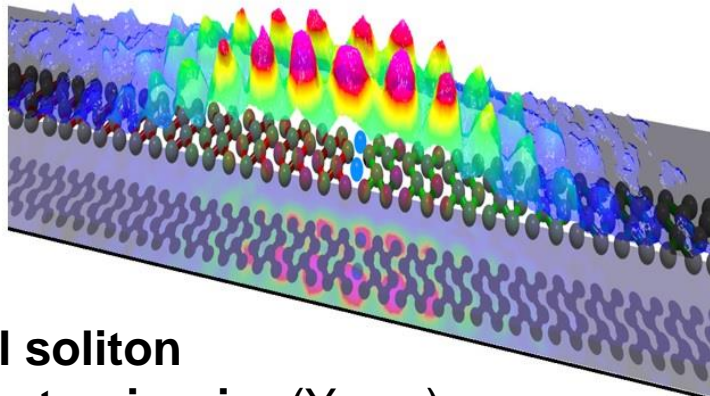


monolayer MoS_2 (Tegenkamp)

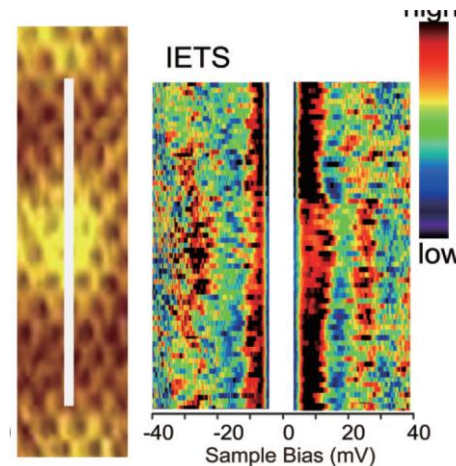


quasicrystal twisted graphene (Ahn)

silicene and X-ene (Le Lay)



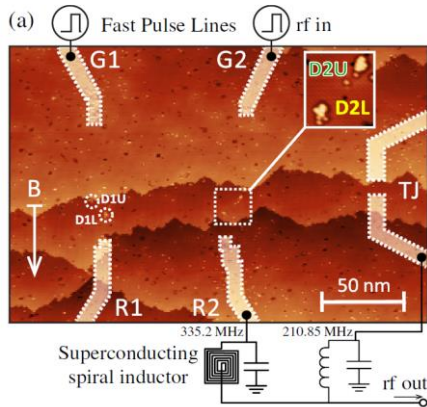
chiral soliton on In atomic wire (Yeom)



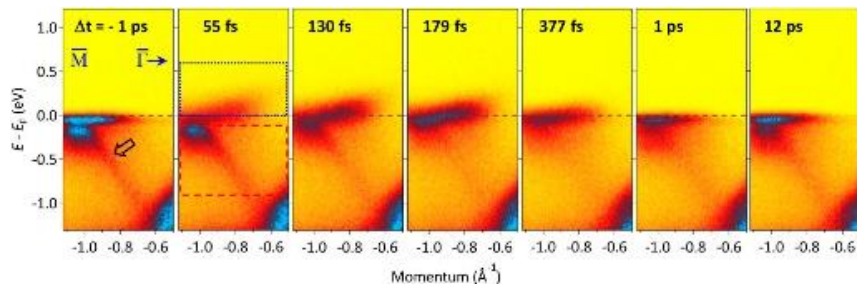
phonon IETS on graphene (Minamitani)

transport/new methods

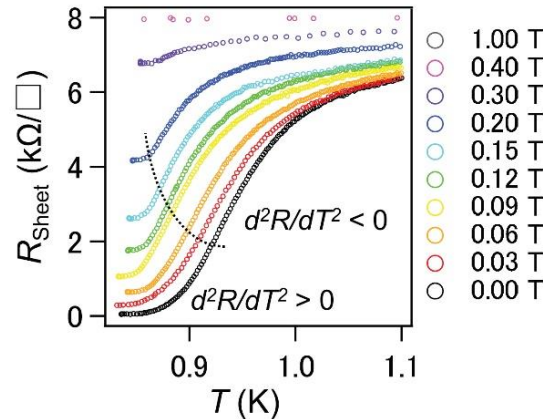
- superconductive transport (Saranin and Hasegawa)
- Photo-carrier transport (Chiu)
- spin qubit operation (Simmons)
- time-resolved ARPES (Lanzara)
- atomic force spectroscopy (Li)



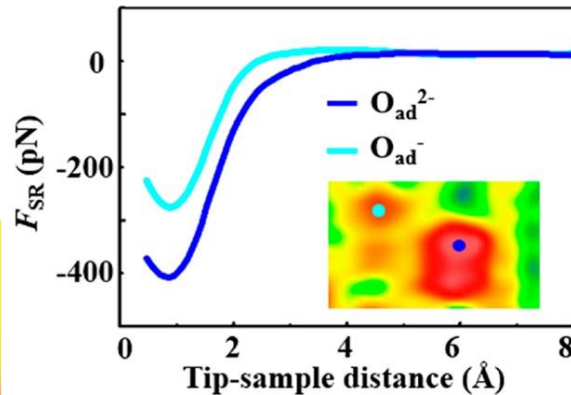
spin-qubit detector on Si (Simmons)



trARPES of 1T-TiSe₂ (Lanzara)



superconducting TI/Si (Saranin, Hasegawa)



local atomic force spectroscopy @ TiO₂ (Li)

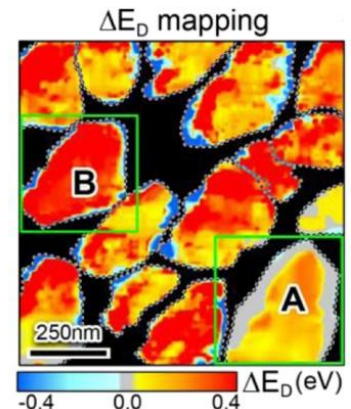
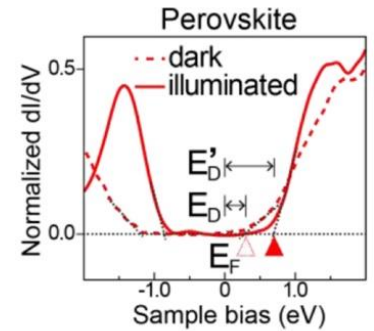


photo carrier local detection (Chiu)

Workshop on Advanced Spectroscopy and Transport for 2D Materials at Surfaces

13 – 17 September, 2020

Venue: OIST



Materials with novel electronic state at surfaces with/without nanostructures

Discussion based on the results of spectroscopy/transport measurements including new methods

Expecting development of this research field by combinations of the presented new ideas & new collaborations using different methods

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