

Bare Bi₂Te₃

Al₂O₃ covered

SAND2019-0481R

Bi₂Te₃ flakes resolved beneath Al₂O₃

5μm

1000 2000 3000 4000 5000 6000

Electron dispersion near Fermi-level

5μm

1000 2000 3000 4000 5000

Electron dispersion near Fermi-level

No sign of surface state expected at the zone center

1Å⁻¹

90 100 110 120 130 140 190 200 210 220 230 240 250

The dark area shows the Brillouin zone accessible using 213nm laser

1Å⁻¹

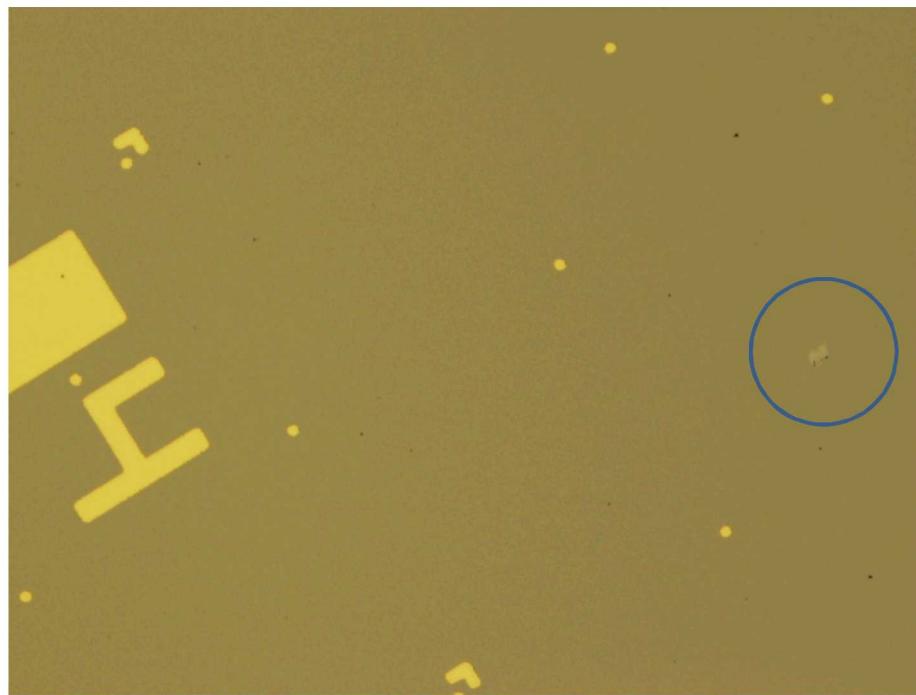
Dispersion of the state not observed presumably due to low energy resolution (~0.2eV)

High-intensity laser measurement near Fermi-level

1Å⁻¹

The feature may be due to the two-photon photoemission: the intensity of the state depends on the photon intensity

Bi₂Te₃ nanoflakes without Al₂O₃



Sample #1

The sample with 10 nm Al₂O₃



- **User facility:**

- Center for Integrated Nanotechnologies (CINT), SNL, supported by, an Office of Science User Facility operated for the U.S. DOE Office of Science by Sandia National Laboratories (Contract DE-AC04-94AL85000) and Los Alamos National Laboratory (Contract DE-AC52-06NA25396).



Sandia National Laboratories is a multi-mission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.



