

**AOFSRR 2015**

Asia Oceania Forum for Synchrotron  
Radiation Research



QInSTO

Australian  
Synchrotron



in conjunction with

**USER  
MEETING  
2015**

National Centre for Synchrotron Science

25-27 NOVEMBER 2015

Contribution ID : 97

Type : **Poster**

## Photoemission study on local phase transition of MoTe<sub>2</sub>

*Friday, 27 November 2015 13:30 (45)*

We investigate local phase transition of MoTe<sub>2</sub> using scanning photoemission electron spectroscopy. In spite of many effort of realizing ohmic-contacted heterostructures between 2-dimensional atomic materials, inherent limitation in the transfer method or chemical doping method, such as impurities, inhomogeneous junction and so on, has not allowed true ohmic contact due to a large interface resistance. In this work, phase transition from the 2H to 1T' phase in MoTe<sub>2</sub> was driven by laser-irradiation, where this system allow us clean homogeneous homojunction ohmic contact between semiconducting 2H- and metallic 1T'-MoTe<sub>2</sub> with low interface resistance. Here we verified the laser irradiation induced the phase transition by analyzing the Mo and Te 3d core-level spectrum on each micron-domain area.

### Keywords

MoTe<sub>2</sub>, homojunction ohmic contact. phase transition. laser-irradiation, SPEM

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**Session Classification :** Poster Session 2

**Track Classification :** Advanced Materials