

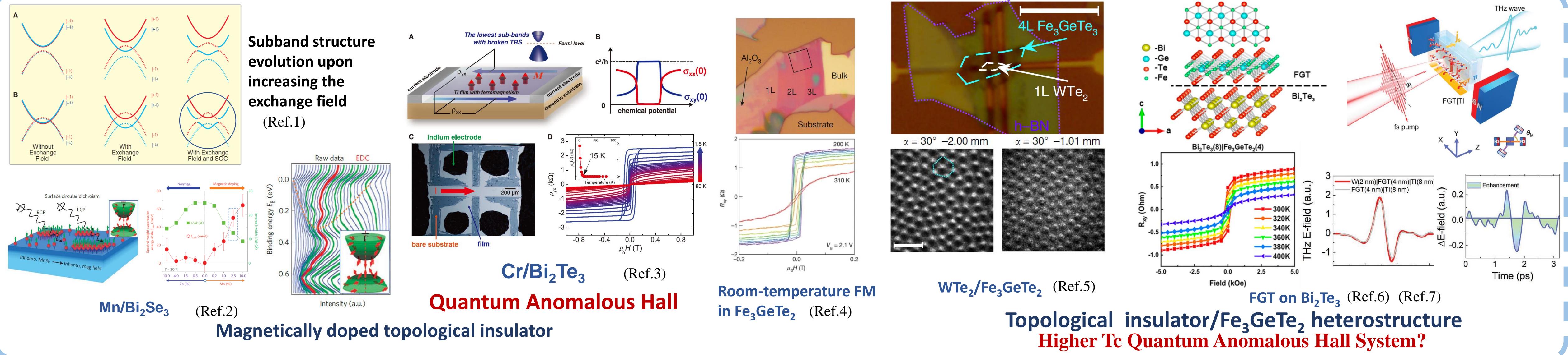
# Surface states and edge states of $\text{Bi}_2\text{Te}_3$ islands on $\text{Fe}_3\text{GeTe}_2$

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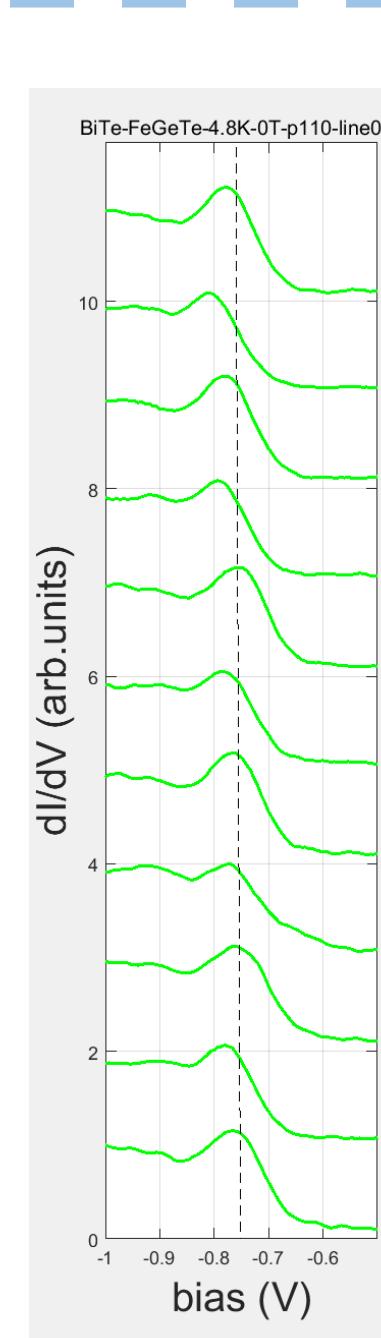
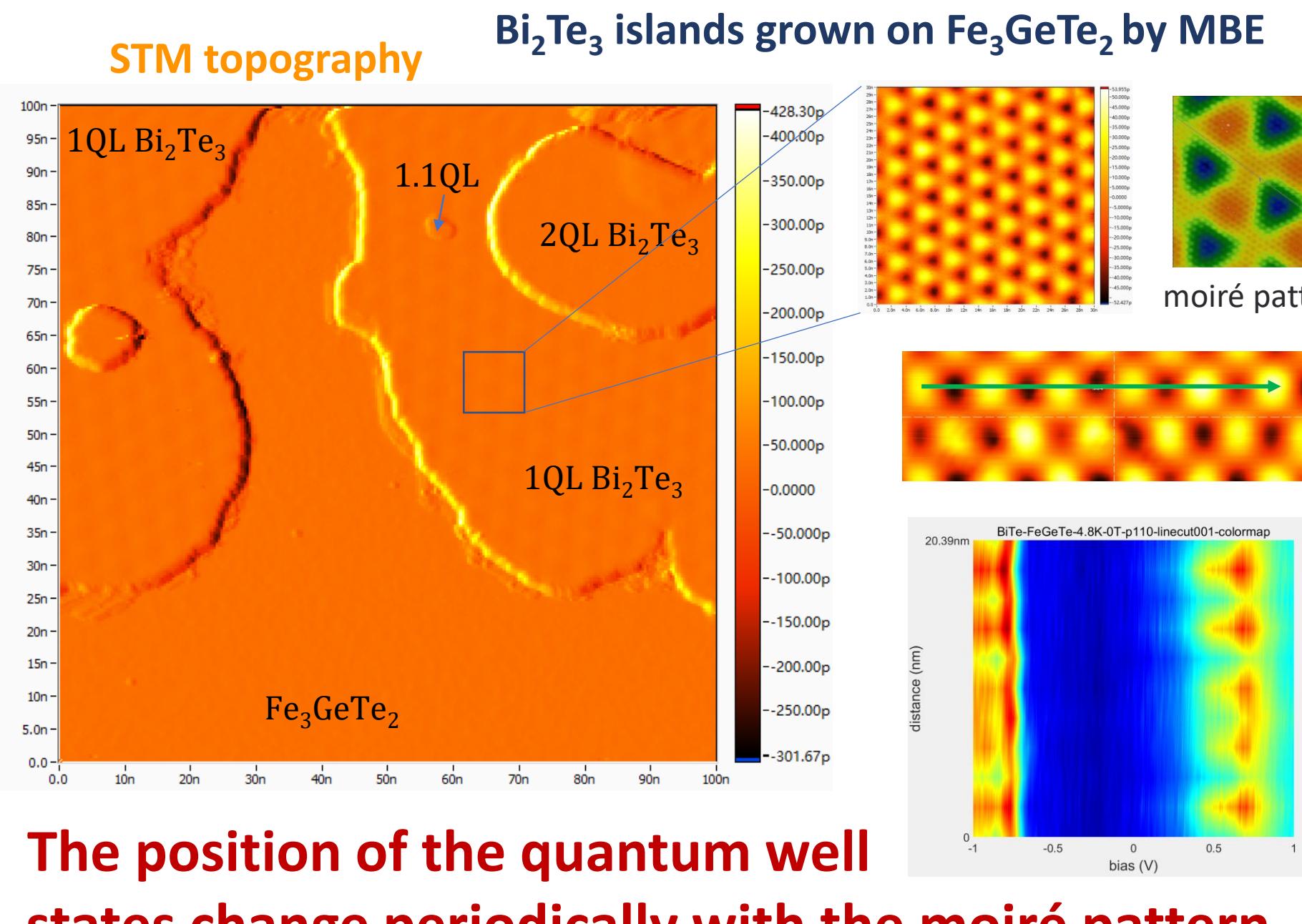
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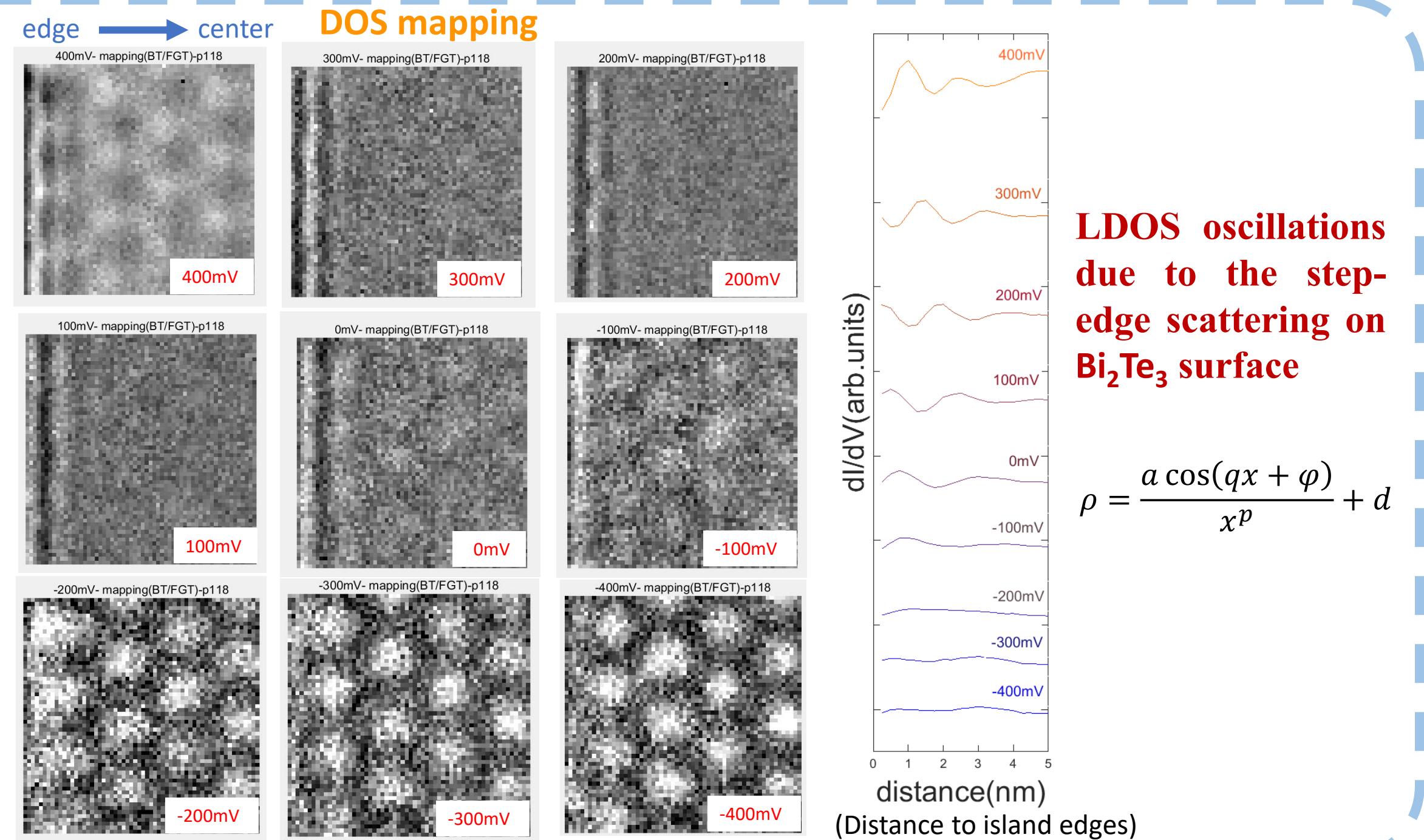
## Introduction: Why TI/FM



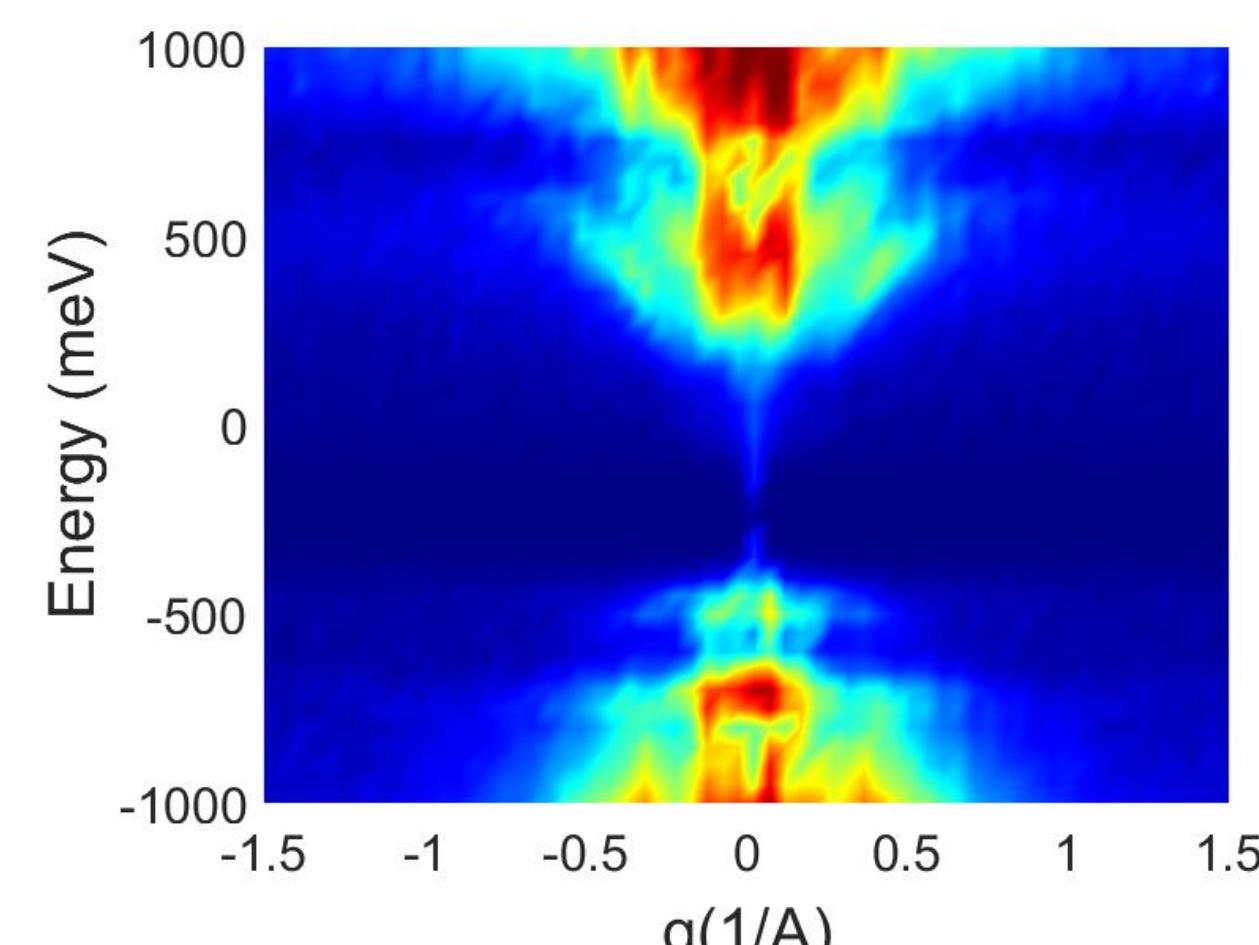
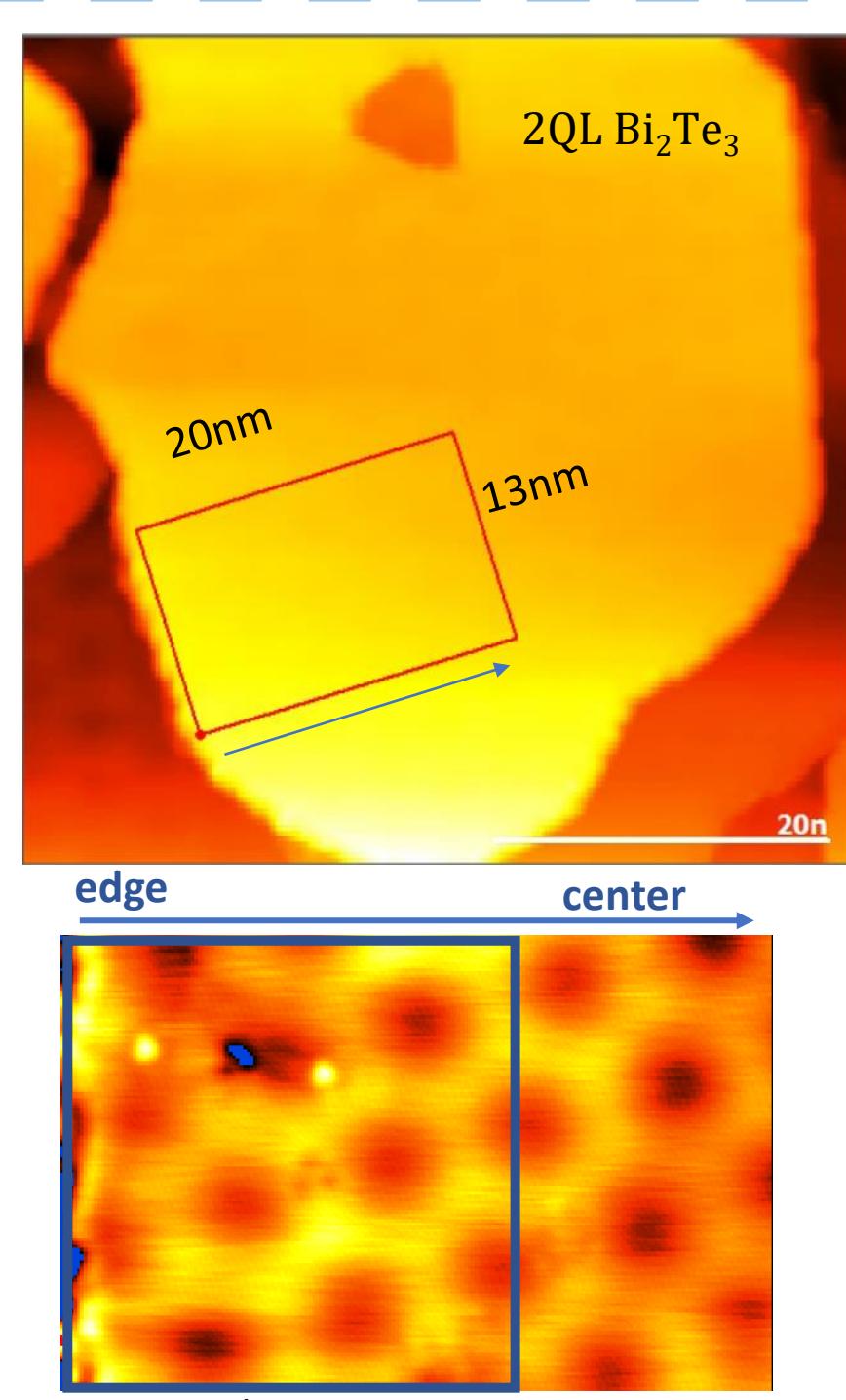
## moiré pattern of Bi<sub>2</sub>Te<sub>3</sub> /Fe<sub>3</sub>GeTe<sub>2</sub>



## Standing waves by Bi<sub>2</sub>Te<sub>3</sub> step edge

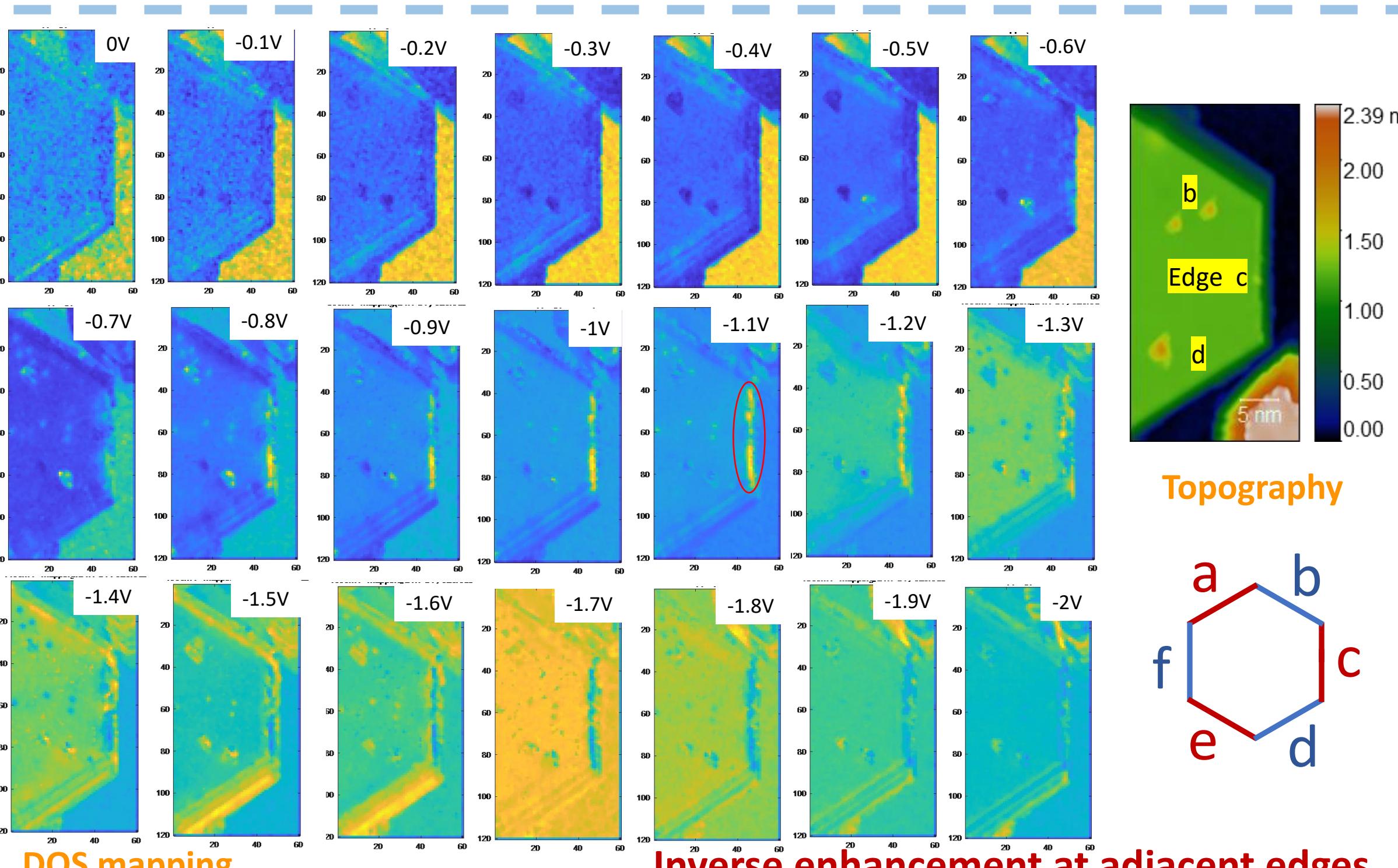


## Surface states on Bi<sub>2</sub>Te<sub>3</sub> /Fe<sub>3</sub>GeTe<sub>2</sub>



Dirac cone opened gap(~70meV) on 2 quintuple layer Bi<sub>2</sub>Te<sub>3</sub> islands grown on Fe<sub>3</sub>GeTe<sub>2</sub>

## DOS enhancement at Bi<sub>2</sub>Te<sub>3</sub> edges



## Summary

1. Moiré pattern of Bi<sub>2</sub>Te<sub>3</sub> /Fe<sub>3</sub>GeTe<sub>2</sub> modulated the quantum well state of topological insulator;
2. Dirac cone of 2 QL Bi<sub>2</sub>Te<sub>3</sub> islands which was grown on 2D van der Waals Ferromagnet Fe<sub>3</sub>GeTe<sub>2</sub> opened gap;
3. The edge states of Bi<sub>2</sub>Te<sub>3</sub> islands on Fe<sub>3</sub>GeTe<sub>2</sub> was inverse-phase enhanced at the adjacent edge.

## References

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3. *Science*, 340, 6129(2013)
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