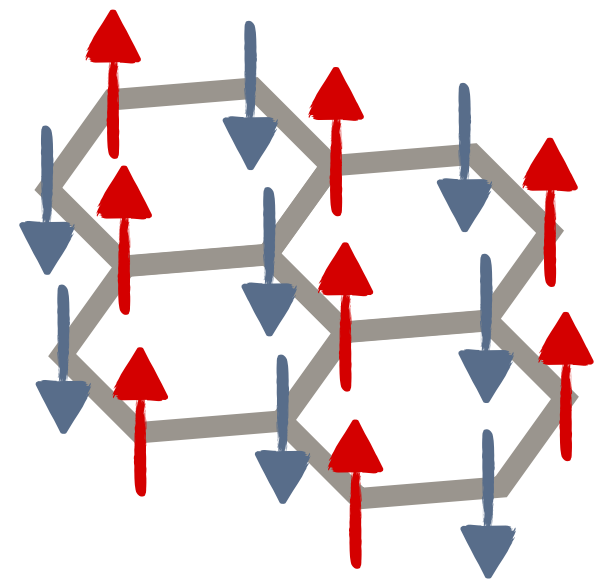


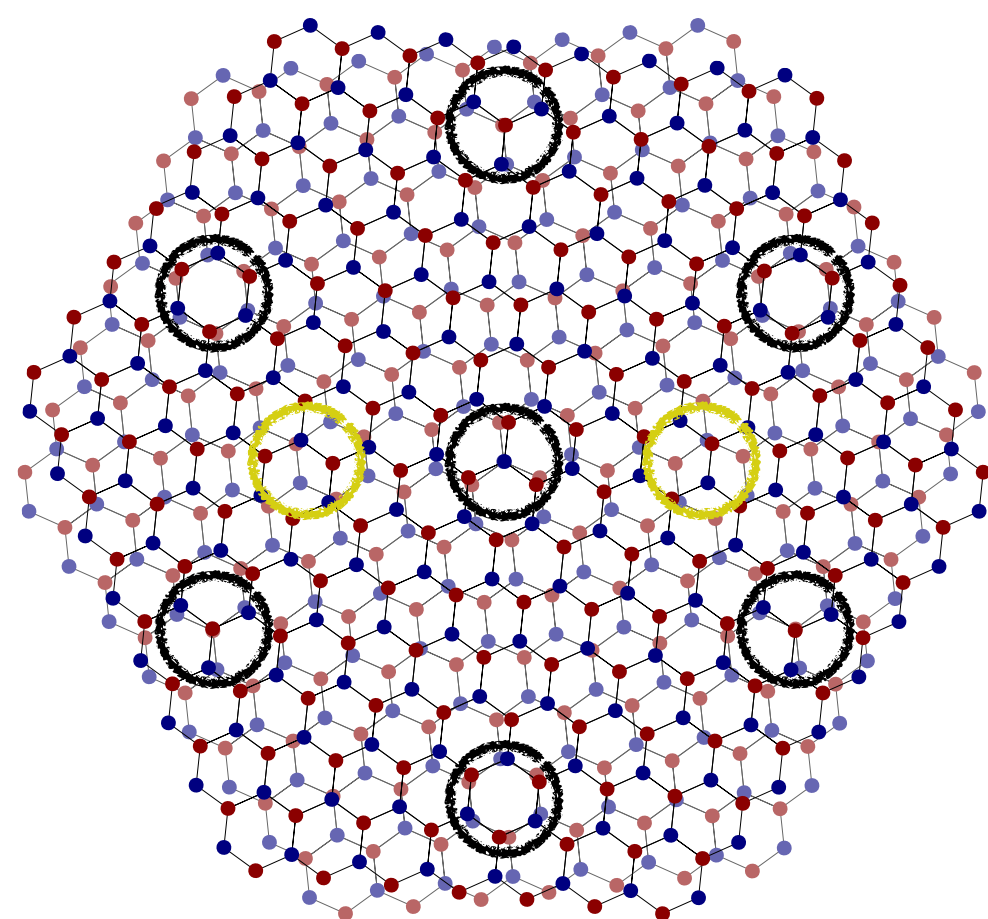
Why are moiré magnets interesting?

- Two honeycomb antiferromagnetic layers,



eg:
MnPS₃
MnPSe₃
....

- with a twist form a moiré pattern:



$\theta = 12^\circ$
relative twist angle

Satisfied interlayer bonds

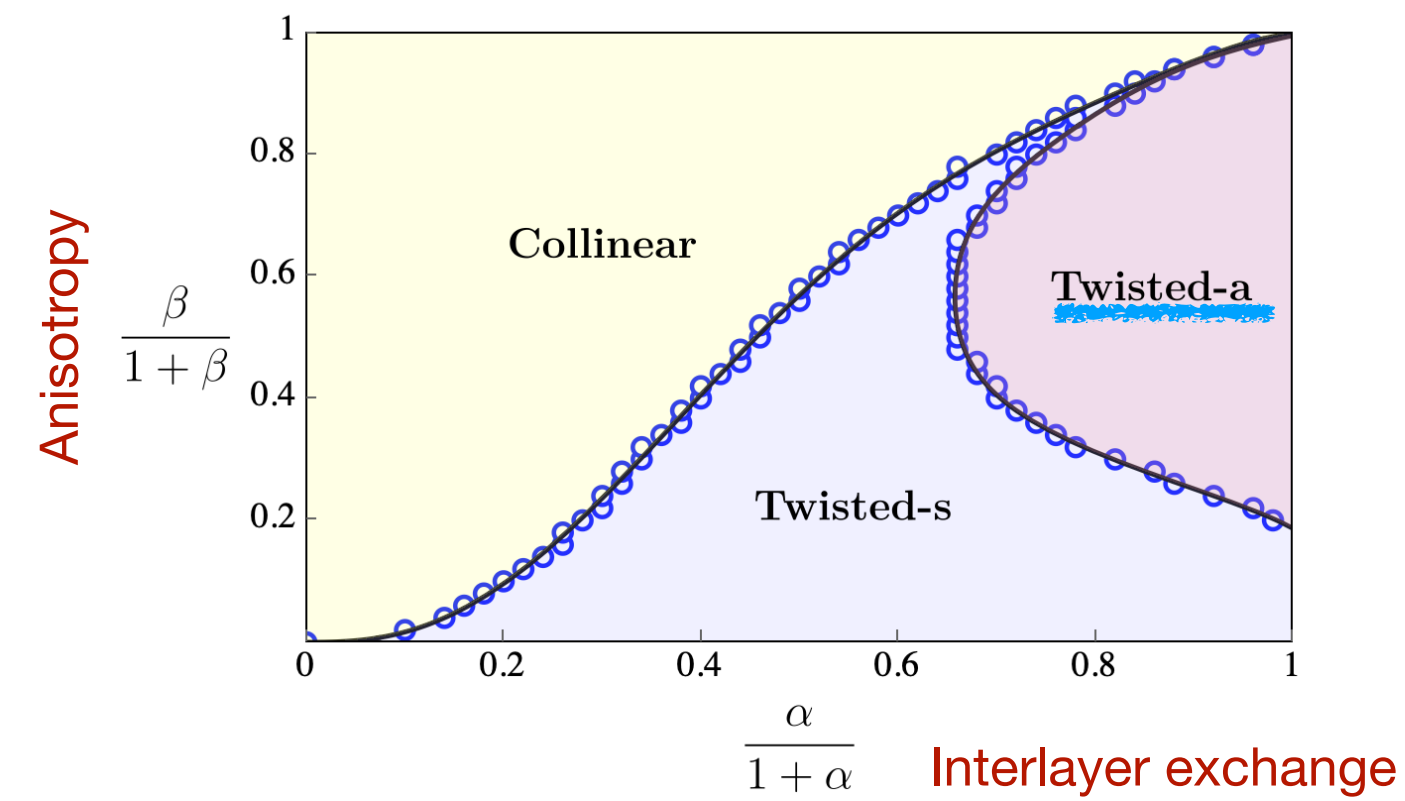


Dissatisfied interlayer bonds



Based on: K. Hejazi, Z.-X. Luo, L. Balents,
"Noncollinear phases in moiré magnets." PNAS (2020)

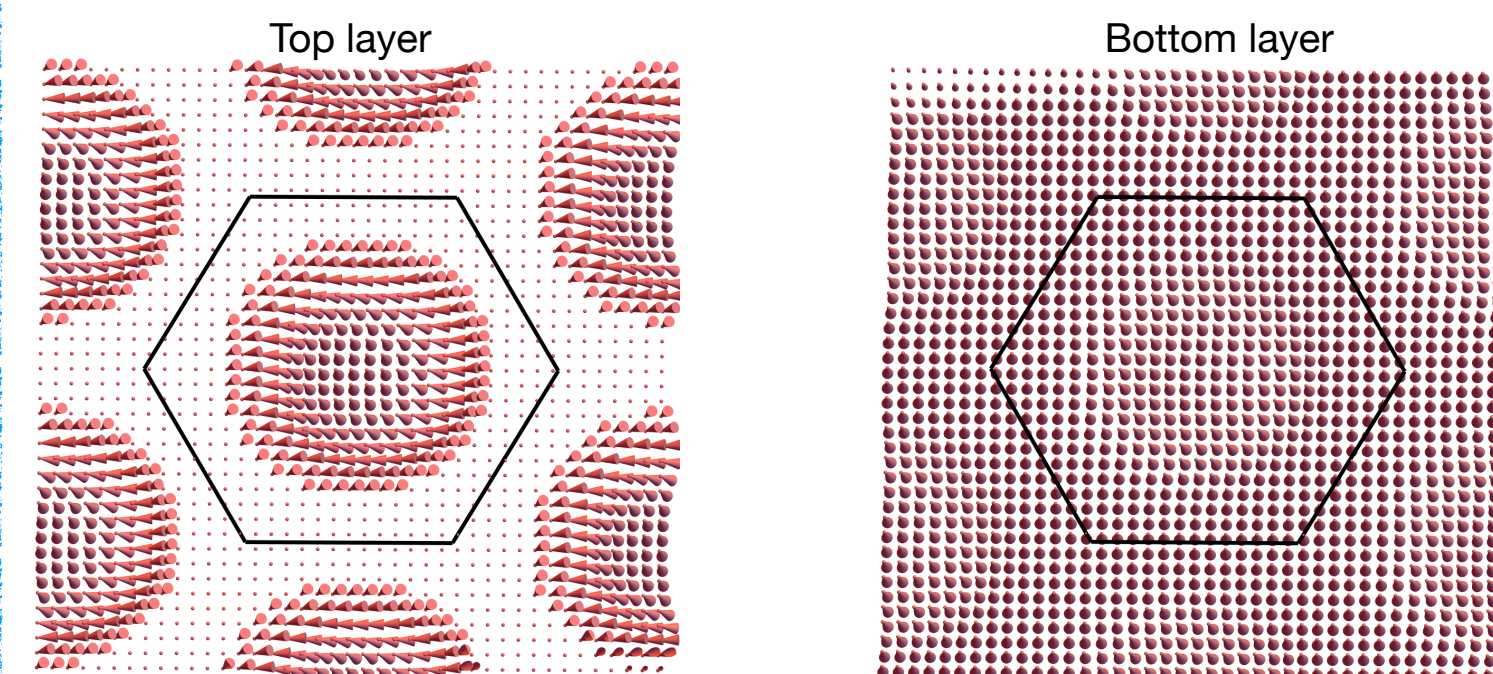
Different phases



$$\alpha, \beta \sim \frac{1}{\theta^2} \implies$$

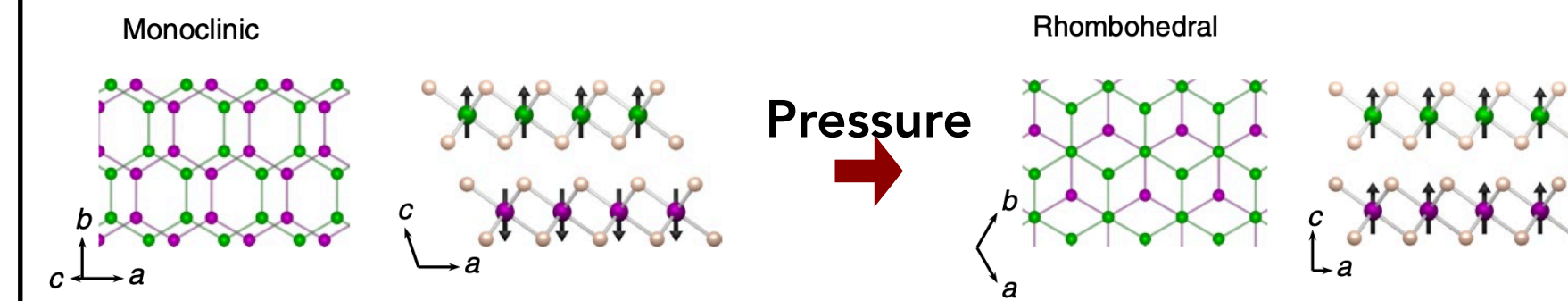
- Large angles: both layers in ground state
- Small angles: twisted phases

- Twisted-a phase:



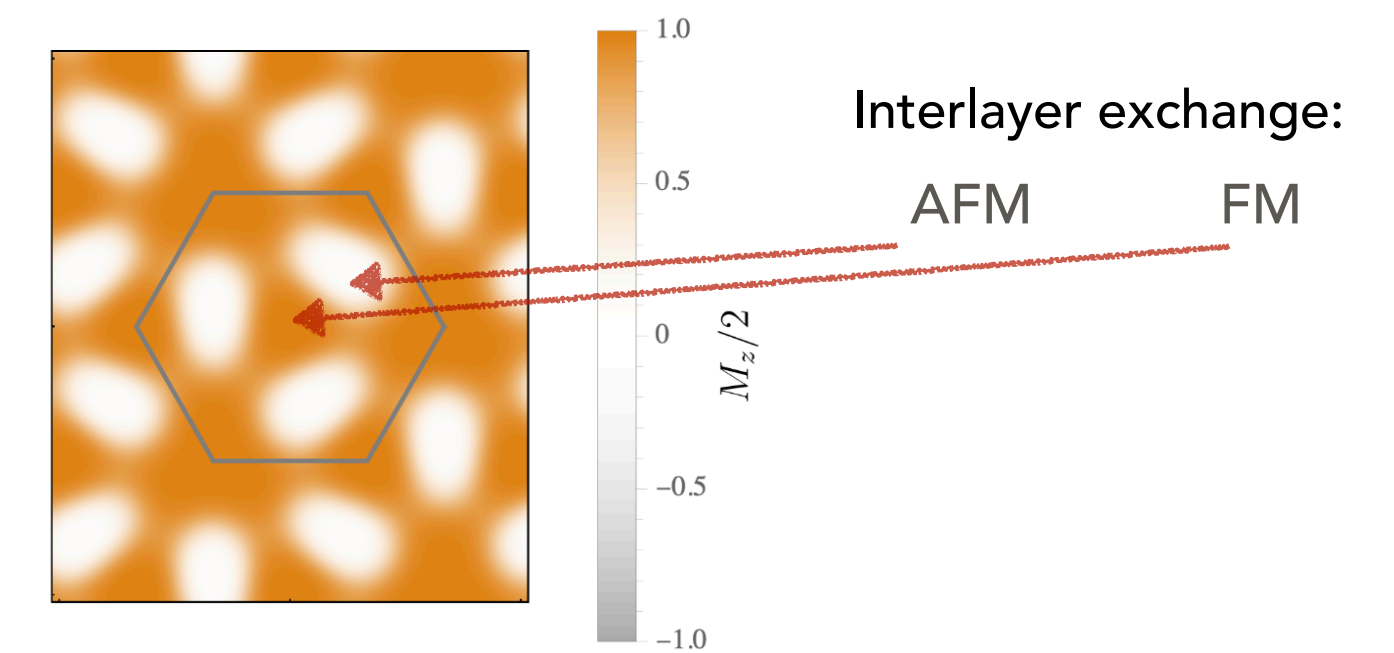
Ferromagnets?

- Twisted bilayer FMs seem innocent!

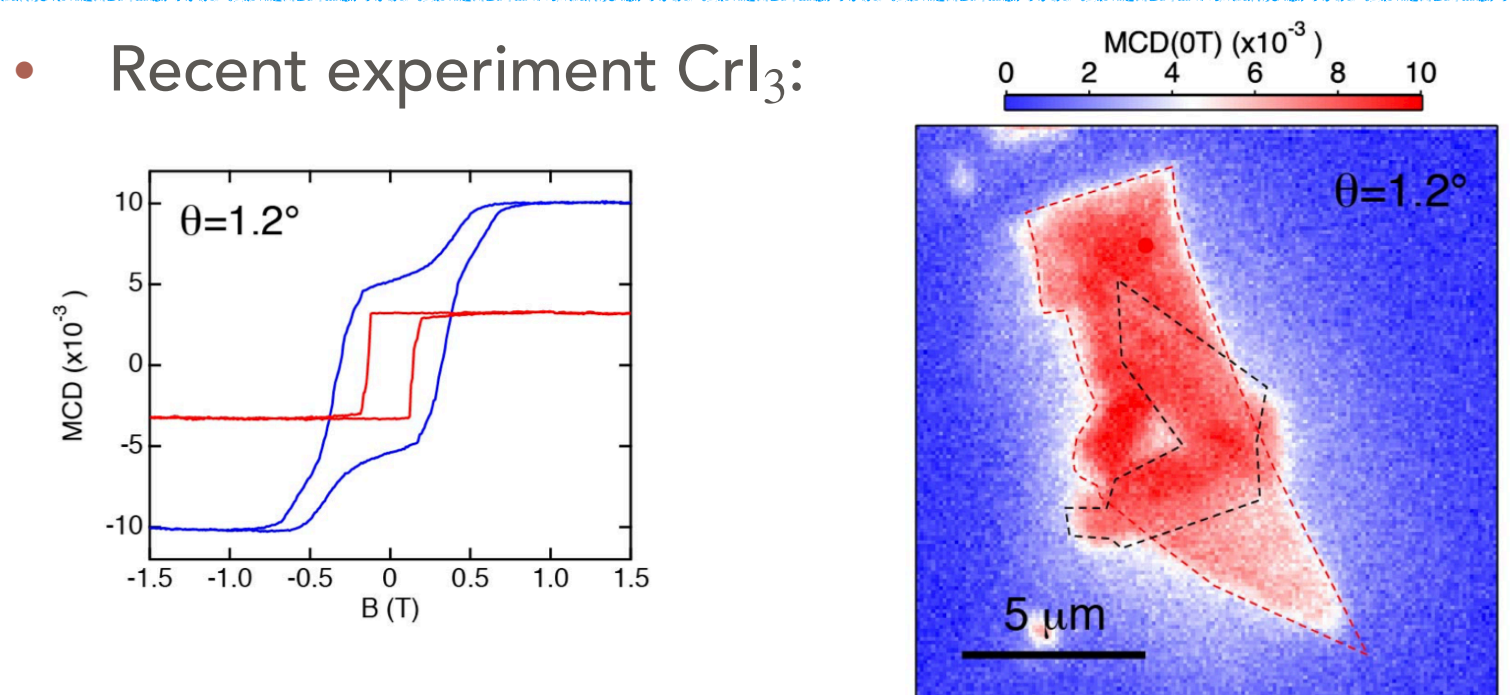


T. Song, et al. *Nature materials* (2019): 1-5.

- CrI₃ at small enough twist angles:



- Recent experiment CrI₃:



Y. Xu, et al. *arXiv: 2103.09850*