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## Kuan Eng Johnson Goh

Institute of Materials Research & Engineering, Agency for Science, Technology and Research (A\*STAR)  
2 Fusionopolis Way, #08-03, Innovis, Singapore 138634

[gohj@imre.a-star.edu.sg](mailto:gohj@imre.a-star.edu.sg)

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## Towards 2D Valleytronics

In this talk, I shall present an update of our recent efforts in developing a suite of research capabilities for studying valley physics in 2D semiconductors with an eye towards applications exploiting 2D valleytronics. [1] In particular, capabilities to detect valley polarization and alter the degree of valley polarization will be demonstrated in archetypal 2D semiconductors such as transition metal dichalcogenides (e.g. MoS<sub>2</sub>, WS<sub>2</sub>). Bandstructures measured by ARPES (Angle-resolved Photoemission Spectroscopy) are compared against those calculated using the DFT formalism. The ability to observe Spin- and Angle-resolved Photoemission adds another dimension to the analysis and I shall discuss our recent attempts to perform such measurements on 2D layered materials.

### References

- [1] F. Bussolotti, Z. Zhang, H. Kawai, and K. E. J. Goh, MRS Advances 2, 29 (2017) 1527.