

# Layered Quantum Materials: Characterization and Applications

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Layered Materials (LMs) have potential for quantum technologies, as scalable sources of single photon emitters (SPEs) [1,2]. LM heterostructures can be built with tuneable properties depending on the constituent materials and their relative crystallographic orientation [3,4]. Quantum emitters in LMs hold potential in terms of scalability, miniaturization, integration. Generation of quantum emission from the recombination of indirect excitons in heterostructures made of different LMs is a path with enormous potential. I will discuss how LM combinations can be used to generate SPEs and confinement of interlayer excitons [5].

- [1] C. Palacios-Berraquero et al., *Nat. Commun.* **8**, 15093 (2017)
- [2] C. Palacios-Berraquero, et al., *Nat. Commun.* **7**, 12978 (2016)
- [3] P. Rivera et al., *Nat. Nanotech.* **13**,1004 (2018)
- [4] M. Barbone et al. *Nat. Commun* **9**, 3721 (2018)
- [5] A. R. P. Montblanch et al. *Commun Phys.* **4**, 119 (2021)