

Layered materials as a platform for quantum technologies

Layered materials are taking centre stage in the ever-increasing research effort to develop material platforms for quantum technologies. We are at the dawn of the era of layered quantum materials. Their optical, electronic, magnetic, thermal and mechanical properties make them attractive for most aspects of this global pursuit. Layered materials have already shown potential as scalable components, including quantum light sources, photon detectors and nanoscale sensors, and have enabled research of new phases of matter within the broader field of quantum simulations. I will discuss opportunities and challenges faced by layered materials within the landscape of material platforms for quantum technologies, with focus on applications that rely on light–matter interfaces[1].

1. A. R. P. Montblanch et al. Nature Nano 18, 555 (2023)