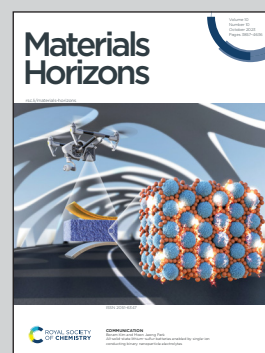


Showcasing research from Professor Chengbing Wang's laboratory at Shaanxi University of Science & Technology, Xi'an, China

Template-free scalable growth of vertically-aligned MoS₂ nanowire array *meta*-structural films towards robust superlubricity

The group of Professor Wang is working on solid lubricant films' engineering-scale applications and their superlubricity mechanisms. This work reports a new template-free fabrication route to well-ordered vertically oriented MoS₂ nanowire arrays (VO-MoS₂ NWAs) *meta*-structural films. Atomic-scale analysis coupled with first-principles calculations reveal that Ag nanoparticle pinned VO-MoS₂ NWAs can spontaneously form continuous nano-scroll sites during frictional sliding, which contribute to realize ambient macro-scale superlubricity. This work expands the application scope of macroscale superlubricity under alternating atmospheres.

As featured in:



See Chengbing Wang,
Junyan Zhang *et al.*,
Mater. Horiz., 2023, **10**, 4148.