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Fundamental questions
Elemental answers



Showcasing research from Dr. Ashok Keerthi's laboratory, Department of Chemistry, The University of Manchester, United Kingdom.

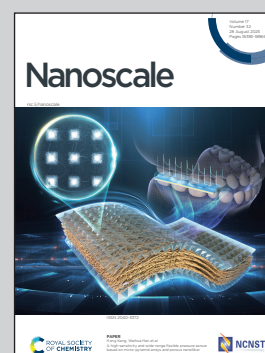
Microtomy-fabricated two-dimensional nano-slits enable single molecule biosensing

An ultramicrotomy-based slicing method has been developed to produce several hundreds of identical 2D nano-slit devices with atomic-scale precision—a major advancement in nanofabrication that overcomes longstanding challenges in throughput and reproducibility. This precise and scalable technique enables the fabrication of MoS₂-based 2D nano-slits capable of real-time detection of individual DNA molecules, capturing intricate molecular conformations *via* the resistive pulse sensing technique. The approach offers a powerful platform for high-throughput biomolecule sensing and unlocks new opportunities for advanced diagnostics and nanofluidic technologies.

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As featured in:



See Boya Radha, Manoj Varma, Ashok Keerthi *et al.*, *Nanoscale*, 2025, **17**, 18605.