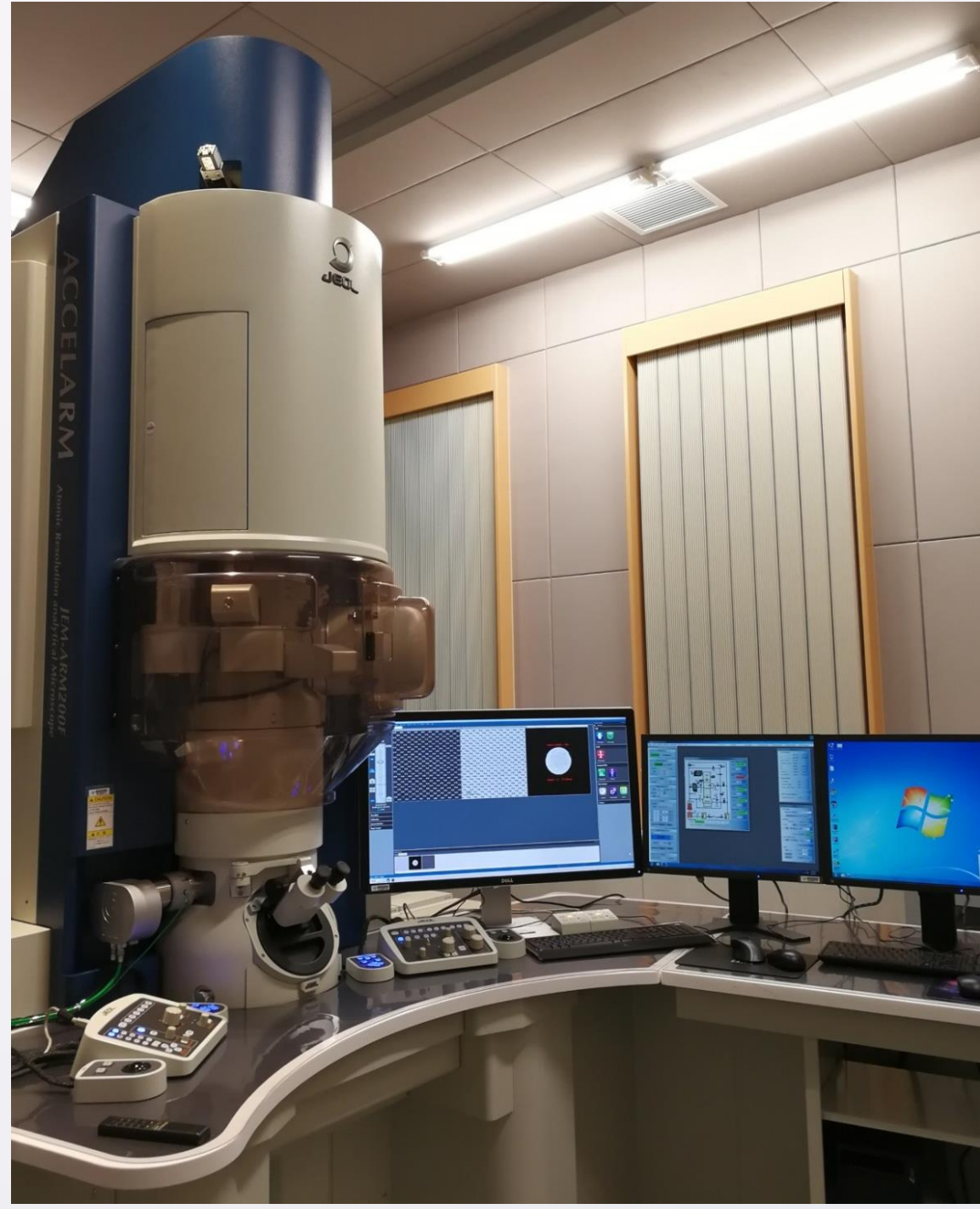


JEOL JEM-ARM200F Cs-corrected STEM@ MCPF

The JEOL JEM-ARM200F installed in MCPF is the first aberration corrected electron microscope in Hong Kong. It integrates a STEM aberration correction for atom-by-atom imaging and advanced analytical capabilities at the sub-nanometer scale.

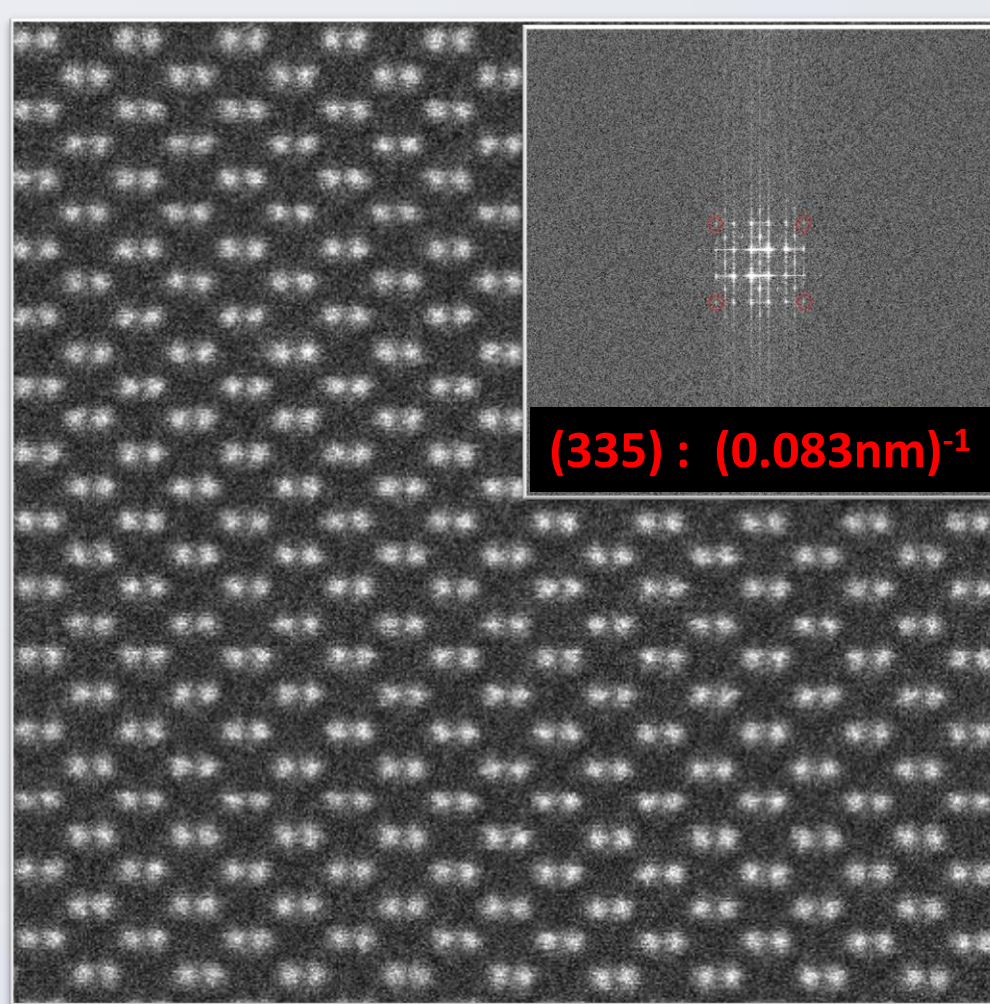


Key Features:

- Advanced STEM aberration corrector
- Cold field emission gun (CFEG)
- Accelerating voltages : 200kV, 80 kV, 60kV and 30kV
- STEM-HAADF resolution of 83 pm
- Four STEM detectors :HAADF, LAADF, BF and BSE
- Conventional TEM with a point resolution of 0.23 nm
- Camera: Gatan Model 833 side mount camera and Gatan One View camera
- EDS: JEOL dual wide-area (100 mm²) silicon-drift detectors (SDD)
- EELS: GATAN Enfium spectrometer with dual EELS capabilities

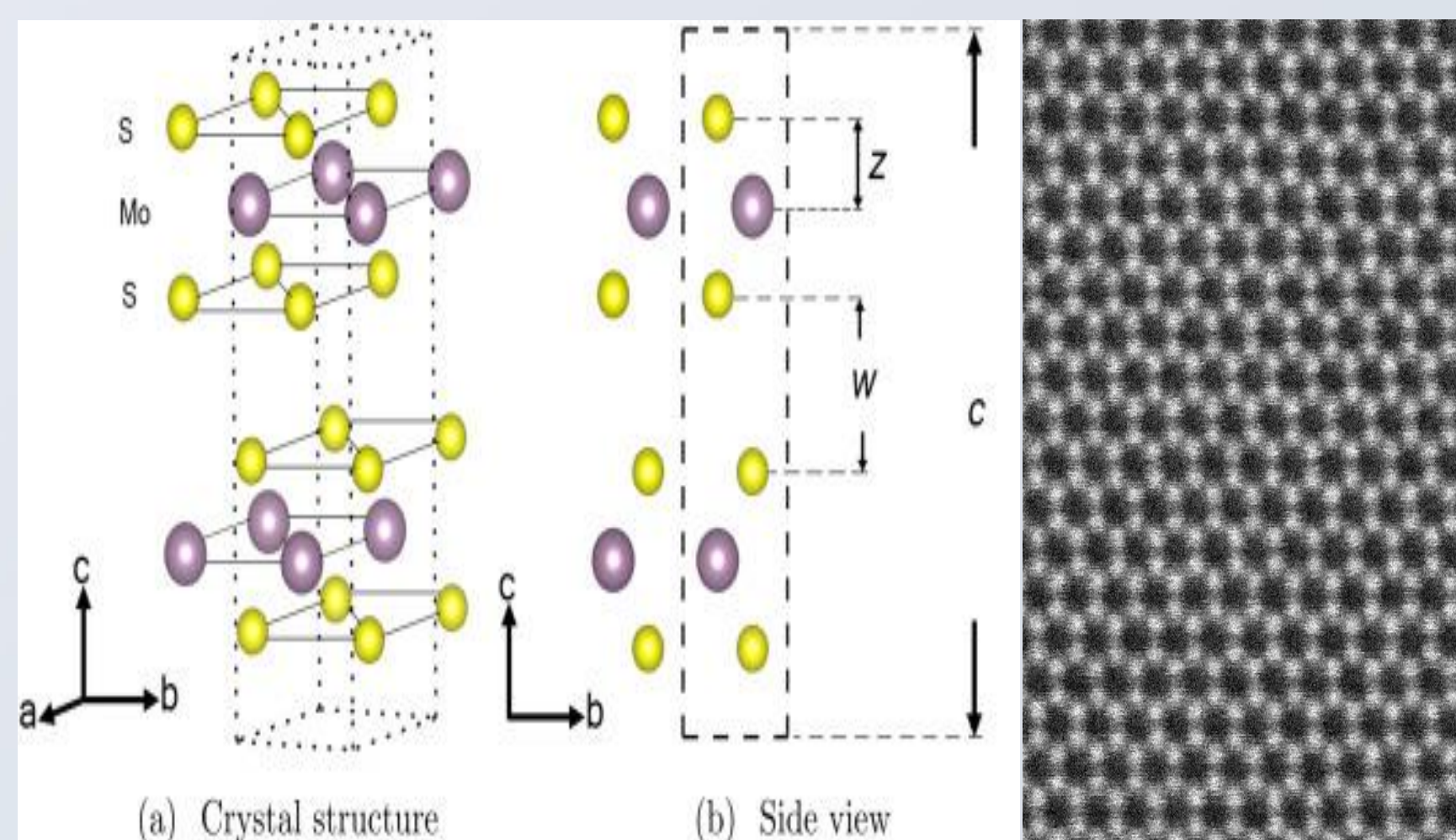
Ultra-high resolution STEM imaging

A ultimate resolution of 83pm@200kV



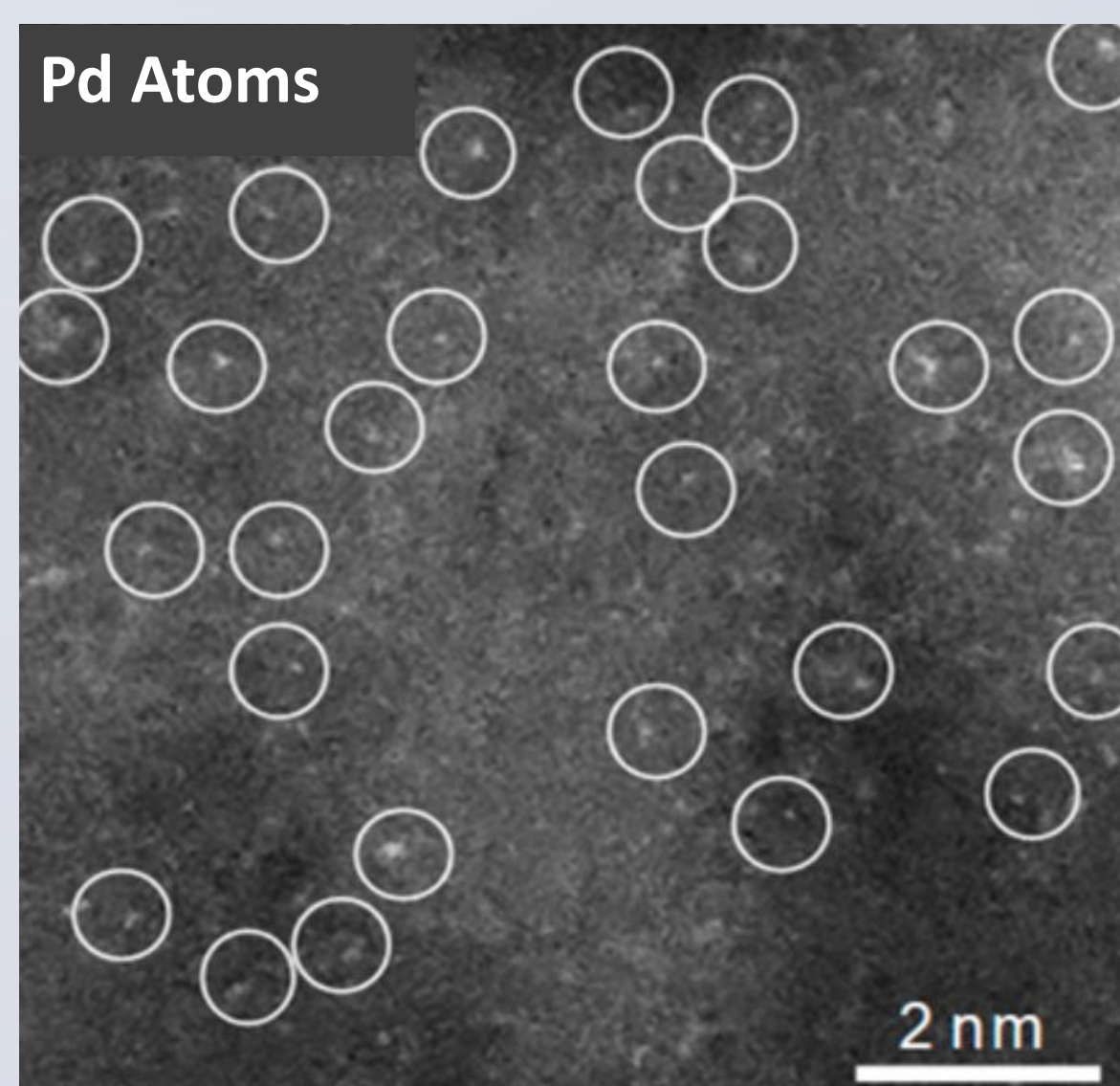
HAADF image of Si (110), the dumbbell structure corresponding to an atomic spacing of 136 pm is resolved. In the FFT pattern, the (335) spot corresponding to a spacing of 83 pm, is observed.

Atomic-resolution at low accelerating



2H MoS₂ nanosheet imaged at 80kV, Mo and S atoms are clearly resolved.

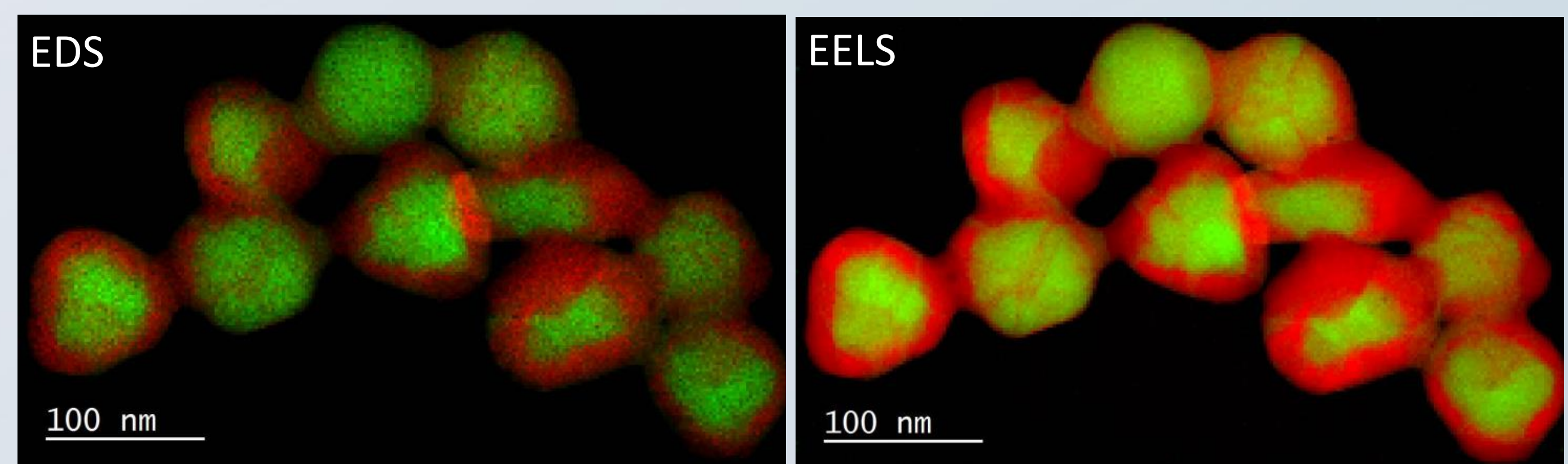
Single-atom imaging



HADDF image of atomically dispersed palladium single - atom catalysts on nanodiamond/graphene (Pd/ND@G) hybrid. Pd single atoms are illustrated by white circles.

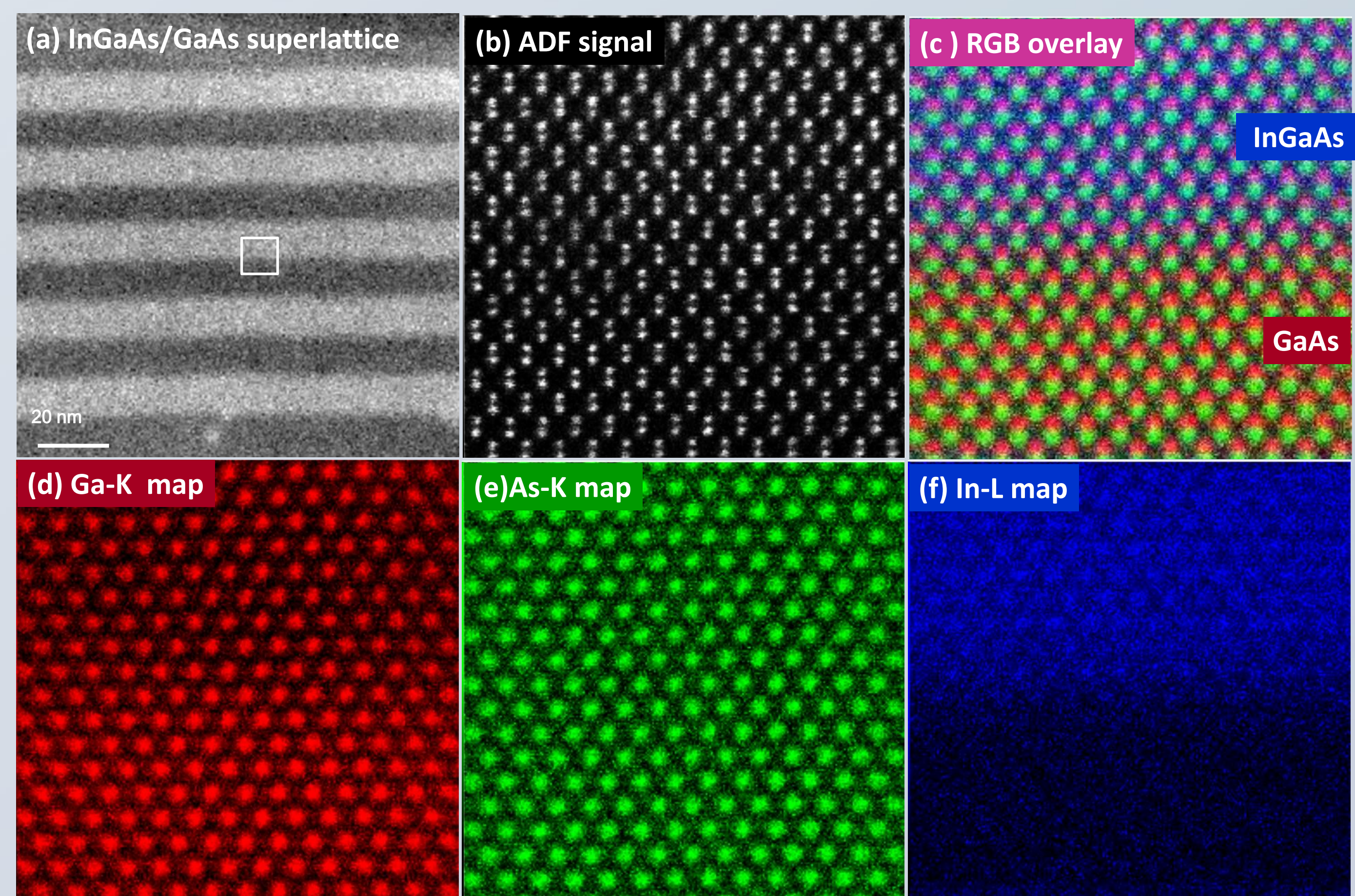
Wide ranging SETM analysis capabilities

Simultaneous EELS & EDS spectrum imaging



Elemental maps of Pd - Au catalyst nanoparticles (Pd in red and Au in green) acquired using EDS and EELS.

Atomic level elemental mapping



Atomic-scale elemental mapping of the interface between InGaAs and GaAs. (a) STEM image of InGaAs/GaAs superlattice and (b) atom-resolved image showing the survey area. (c) Color-overlaid elemental map from (d) Ga in red, (e) As in green and (f) In in blue.

MCPF@HKUST is a central facility intensively serving the academic researchers for the preparation, characterization and analysis of various advanced materials. In addition to serving HKUST, services are open to Hong kong sister institutions, government laboratories and regional industries.

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