

## **Notes on the nano-revolution: Revealing the nano-scale**

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A variety of different instruments are currently available for the real time observation of dynamic phenomena at the nanoscale, even at the atomic scale. These include TEMs with special high pressure, high temperature specimen holder; TEMs with special environmental chambers that are dedicated to high pressure, high temperature TEM observation; UHV TEMs with 5 orders of magnitude gas pressure variation at high temperature; UHV SPMs with 6 orders of magnitude gas pressure variation at high temperature; and SPMs with high pressure, high temperature capabilities. Though this workshop is concentrating on applications of electron microscopy to in-situ studies of dynamic phenomena, correlating results obtained in the in-situ TEM with those from other atomic scale imaging devices, viz. SPM, can yield unique information. Many nanomaterials are dominated by surface energy, and though characterization of materials and material changes in TEM is especially revealing, the surface morphology and structure are better elucidated by scanning probe methods. Examples of TEM and SPM in-situ results will be compared.