

PROTOCHIPS

Protochips *in situ* electron microscopy solutions: capabilities and applications.

New innovations are transforming the Transmission Electron Microscope (TEM) from a simple high-resolution image acquisition tool into a nanoscale materials Research and Development laboratory. Researchers want to better understand material behavior in real-world gas or liquid environments at high resolution in order to study applications such as heterogeneous catalysis and nanostructure nucleation and growth.

In this presentation we will explore the most recent results using the Atmosphere Gas Environmental Cell and the Poseidon flowing liquid and electrochemistry systems and provide updates on new technology in our Aduro heating and electrical biasing system. The Atmosphere 200 Gas Environmental Cell combines our patented MEMS technology and holder-based closed cell design with innovative software and gas handling hardware, allowing for atomic-scale resolution at gas pressures up to 1 atm and sustained temperatures up to 1000°C and is compatible with analysis tools including EDS and EELS. The Poseidon liquid cell surrounds samples in a self-contained and fully hydrated flowing and mixing chamber directly within the TEM. Samples and processes that previously required freezing, or could not be imaged without resin embedment or desiccation, can now be studied and observed in liquid and at high resolution. With the Poseidon Electrochemistry system, real-time electrical analysis can also be achieved. Both systems are fully EDS compatible.

In situ research has become an established discipline as it vastly improves the speed and efficiency by which new nanomaterial properties are uncovered and ultimately used in commercial applications. Protochips has established leadership in easy to use, accurate, stable and reliable tools for your in situ needs.