

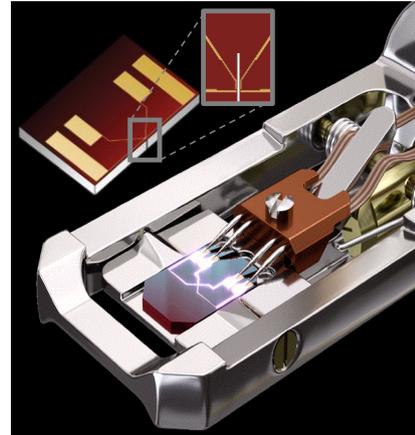
FIB SAMPLE PREPARATION FOR IN-SITU ELECTRICAL CHARACTERIZATION

Hands-on Workshop on Tuesday June 25th, 2019

CentralSupélec, Gustave Eiffel building
8-10 Rue Joliot Curie
91190 Gif-sur-Yvette, France

Join Centralsupélec and Protochips for a hands-on workshop that will teach you how to create and prepare FIB lamellae for in-situ electrical analysis in the TEM. Ideal for individuals studying semiconductor samples in memory storage, battery materials, photovoltaics, electrical devices and more, this workshop will show you how simple it is to characterize your sample with the latest in-situ TEM

	Activity
8:30 - 9:00	Registration and Welcome Coffee and light refreshments
9:00 - 10:30	Introduction to FIB sample prep <i>Dr. Rémy Berthier, Protochips</i> Analyzing samples using in situ EM techniques has enabled unprecedented discovery in research fields ranging from memory devices to solid state batteries. The Protochips product suite brings heating and electrical testing and liquid or gaseous environments to any TEM/STEM. This presentation will focus specifically on giving an overview of the Protochips Fusion in-situ TEM/SEM heating and electrical system including applications and results that are obtainable with the system. Learn how to prepare high-quality FIB samples of any material with this outline of the FIB process. Featuring content relevant for novice users and experts alike, this presentation will give you the background needed to prepare FIB samples of your sample or material.
10:30 - 12:00	Hands-on Demonstration of FIB Preparation: FIB lift out, transfer, contacting and thinning <i>Dr. Rémy Berthier, Protochips</i> In part one of this demonstration, a previously trenched FIB lamellae will be lifted out within the dual beam FIB/SEM and attached to the FIB-optimized E-chip. Attendees will see how these innovative new E-chips replace standard Copper grids to enable any FIB sample to be electrically characterized with the Fusion system. In a second step, the FIB lamella will be thinned to electron transparency using techniques designed to eliminate ion implantation and curtail sample flexing. Short circuits will be milled into the sample to allow electrical characterization to occur across the lamella as desired.
12:00 - 13:30	Lunch Lunch will be served and is free of charge to registrants
13:30 - 14:30	Demonstration of Fusion Electrical Biasing: Imaging PZT sample & Clarity Fusion software package <i>Dr. Mathias Mosig / Dr. Rémy Berthier, Protochips</i> The previously prepared sample will be electrically characterized within the TEM using the Fusion electrical biasing system. Atomic resolution images will be obtained while Clarity software controls and collects data for the experiment conducted.
14:30 - 14:45	Coffee Break Join us for a quick break with light refreshments
14:45 - 15:45	Atmosphere in-situ TEM gas cell system and Metal Organic Vapor Phase Epitaxy Inside a TEM Under Atomic Resolution Conditions <i>Dr. Mathias Mosig Protochips</i> The Atmosphere in-situ TEM gas cell system is designed for applications in catalysis, semiconductor research, crystal studies and other applications. It enables imaging TEM samples under a controlled gas environment and elevated temperatures, including residual gas analysis. One application of the system will be discussed in detail.
15:45 - 16:30	Q&A and open panel discussion, conclusions <i>Participants & Protochips Team</i> Exchange on needs for failure analysis, workflow and in-situ measurement needs. Ask questions about FIB preparation techniques or electrical characterization within the TEM/SEM



Schedule subject to change without notice

