

Opening at the Max-Planck-Institut für Eisenforschung in
Düsseldorf, Germany, in M. Herbig's group



Post-Doc position on “Correlative 3D-Precession Electron Diffraction / Atom Probe Tomography”.

Background: Scope of the three-year project is the development of a 3D TEM orientation mapping technique that provides information as known from 3D-EBSD but non-destructively and potentially with 50x better nm spatial resolution. This allows to track the evolution of grain orientations, grain shapes and phases over time at near atomic scale. Datasets will be reconstructed based on tilt-series of 2D TEM precession electron diffraction (PED) scans. The combination with atom probe tomography will provide highly accurate complementary information on the 3D distribution of elements. For this method development we unite the expertise on correlative TEM/APT (M. Herbig, MPIE), 2D-PED (E. Rauch, SIMaP, Grenoble) and 3D-synchrotron orientation microscopy (W. Ludwig, ESRF, Grenoble).

Tasks: Establishment of a procedure that allows semi-automated acquisition of a tilt-series of 2D-PED scans and the subsequent measurement of the same specimen by APT. Support the team in Grenoble with the development of the 3D-PED reconstruction algorithm. Digitally merge multidimensional information from TEM and APT and quantify information on grain boundary segregation. Specimen preparation by focused ion beam milling.

Candidate: We are looking for a highly motivated Post-Doc with a physics or materials science background. The candidate should have experience with and great interest in TEM method development, digital image processing, programming, multidimensional data analysis and materials science. Besides excellent records, very good spoken and written English is a must. German language skills are welcome but not obligatory. The candidate should have good communication skills and team spirit. The project is aimed to start end of spring 2020. We are an equal-opportunity employer. We offer an international research environment with excellent equipment and motivation for ambitious researchers. The interested candidate should upload a comprehensive application including application letter, detailed scientific CV, his/her publications, two reference /support letters from his professors and details about courses / classes / grades on <https://www.mpie.de/2747317/career> -> job offers -> PostDoc - Correlative 3D-Precession Electron Diffraction / Atom Probe Tomography.

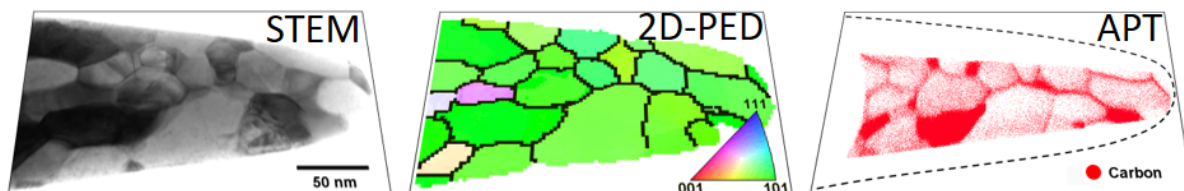


Figure: Correlative TEM/APT [M.Herbig et al. PRL 2014]. Scope of the project is to turn the 2D-PED method into a 3D version to make it applicable to all nanomaterials.