

Data mining potential in atom probe tomography

Tuesday, 12 April 2022 16:15 (30 minutes)

Atom probe tomography is now an established near atomic-scale characterization technique. However, the traditional analysis often limits the subtle inherent details of field evaporation processes occurring near defects or multiple phases. We present two cases employing unconventional data mining routines on experimental data to extract valuable physical insights, supported by simulations. First, we utilize the correlations exhibited by field desorption and field evaporation in mass spectra to enable analytical field ion microscopy. Second, the real energy deficit due to defects is resolved from mass spectra using an approach that we term field evaporation energy loss spectroscopy.

Poster title

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Session Classification: Session IV