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Addressing multi scale challenges in materials research

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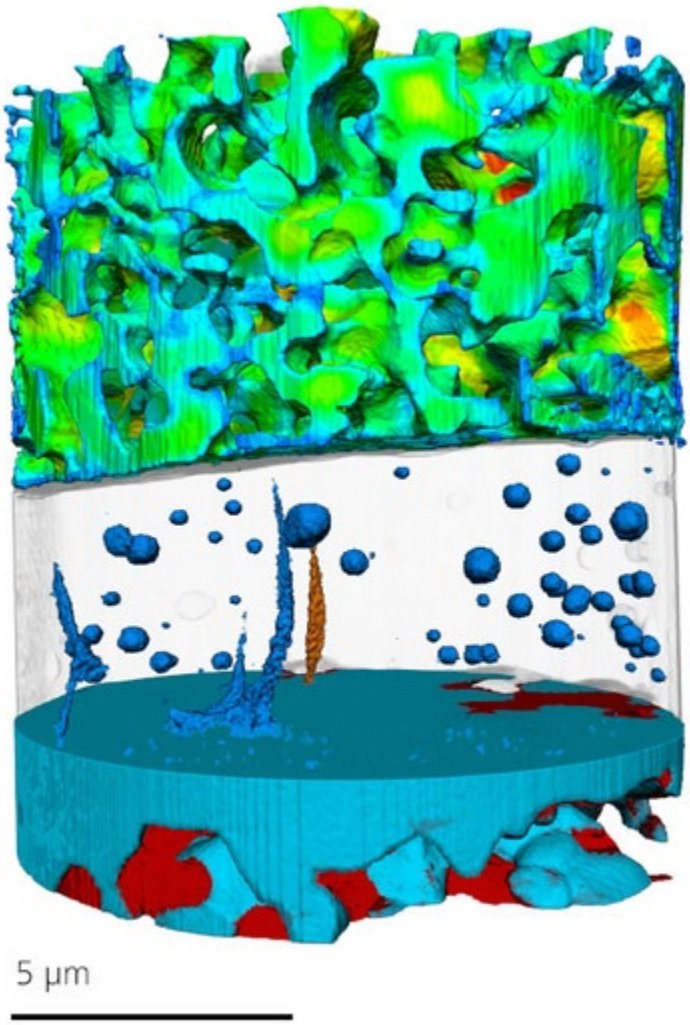
Abstract

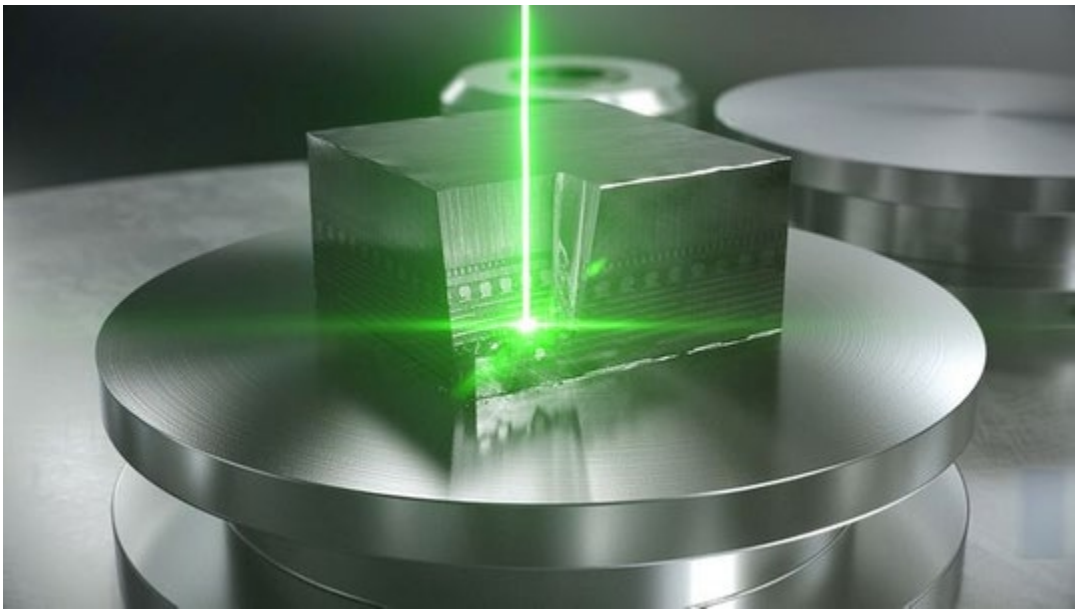
Materials characterisation requires investigations across the macro, meso and nanoscales. A combination of X-ray Microscopy (XRM) and Focused Ion Beam Scanning Electron Microscopy (FIB-SEM) can be used to identify areas of interest and prepare samples for high resolution techniques such as TEM or Atom probe tomography. This provides representative data across larger volumes than classical high resolution techniques giving greater context.

The ZEISS portfolio enables multi-scale investigations of materials allowing us to combine and correlate information from different experimental modalities at the same region of interest.



Solid Oxide Fuel Cell (ZEISS Xradia Ultra 810) - top : anode , middle : electrolyte (segmented to show voids) , base - cathode

Recent advances in integrated Femtosecond laser milling technology allows for extremely rapid access to deeply buried features for additional investigation with alternative modalities. XRM technologies provide non-destructive imaging to identify regions of interest creating new highly efficient ways of working across a breadth of length scales.



Femtosecond laser milling, rapid access to deeply buried features