

Materials and Nanoanalysis for Microelectronics

The current development of microelectronics is still driven by the extension of classical concepts to smaller feature sizes. The presentation is focused on materials and analytical challenges of the further development of DRAM nonvolatile memories. After a brief introduction to the basics of a DRAM cell the parameters of the cell capacitor are discussed. The preparation of corresponding dielectric materials by atomic layer deposition and the analysis with X-ray diffraction and high resolution Rutherford backscattering spectrometry is discussed in more detail. The final part of the presentation is dedicated to the analysis of dopant profiles by atom probe tomography.