

Beating the Diffraction Limit: Near-field Microscopy with Advanced Photon Sources

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Scanning near-field optical microscopy (SNOM) makes it routinely possible to overcome the fundamental diffraction limit of standard (far-field) microscopy. The potential performances of SNOM are enhanced by the use of advanced photon sources and in particular by infrared free electron lasers. Recently, infrared SNOM performed in the spectroscopic mode started delivering spatially-resolved information on the distribution of chemical species and on other laterally-fluctuating properties. The practical examples that will be presented show the great potential of this new technique both in materials science and in the life sciences.