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A New Femtosecond Laser-Based Tomography Technique for Multiphase Materials

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A New Femtosecond Laser-Based Tomography Technique for Multiphase Materials

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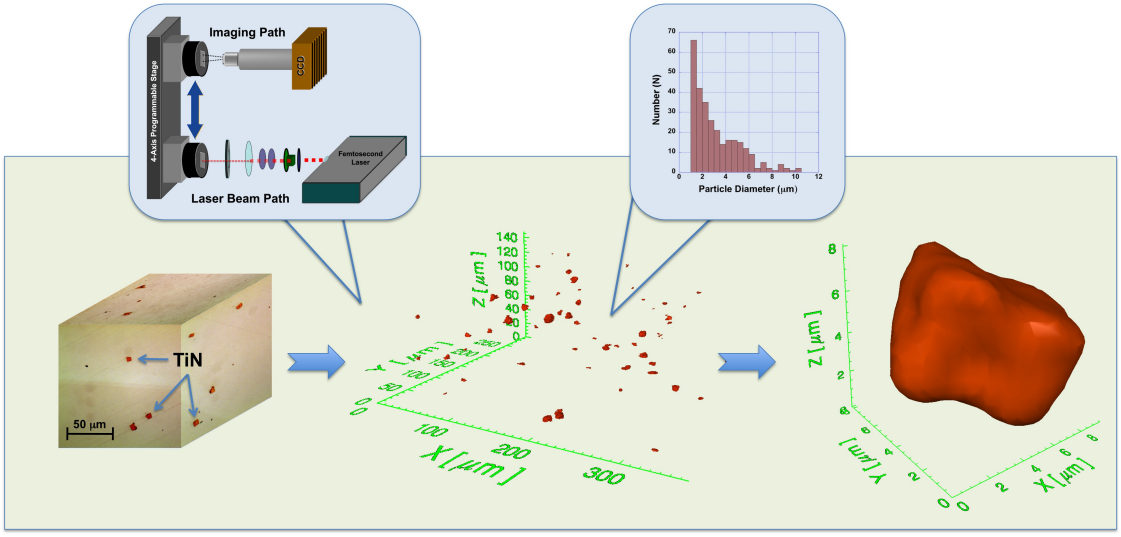
A new tomography technique for image 3-D nm-scale material features in mm^3 volumes has been developed. The technique employs a femtosecond laser for layer-by-layer material removal at rates 4-5 orders of magnitude faster than comparable serial sectioning techniques. The technique can be applied to a wide range of multiphase materials and an example of its application for imaging of TiN particles inhomogeneously dispersed in a metallic matrix is given.


Imaging Path
CCD
4-Axis Programmable Stage
Femtosecond Laser
Laser Beam Path
Number (N)
Particle Diameter (μm)
TiN
50 μm
Z [μm]
X [μm]
Y [μm]