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3D Diffraction Microscope Provides a First Deep View
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When a coherent diffraction pattern is sampled at a spacing sufficiently finer than the Bragg peak frequency (i.e. the inverse of the sample size), the phase information is in principle encoded inside the diffraction pattern, and can be directly retrieved by using an iterative process. In combination of this oversampling phasing method with either coherent X-rays or electrons, a novel form of diffraction microscopy has recently been developed to image nanoscale materials and biological structures. In this talk, I will present the principle of the oversampling method, discuss the first experimental demonstration of this microscope, and illustrate some applications in nanoscience and biology.