

# Electric-field-resolved wide-field near-field imaging

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We demonstrate spatially-resolved electro-optic sampling of near-infrared waveforms, providing a versatile platform for the direct measurement of electric field dynamics produced by and inside of photonic devices and structures. The imaging modality demonstrates a path towards hyperspectral microscopy with sub-wavelength resolution, wide-field images recorded in the far field. The field microscopy of small metallic particles yields a direct time-domain measurement of locally-enhanced electric fields.

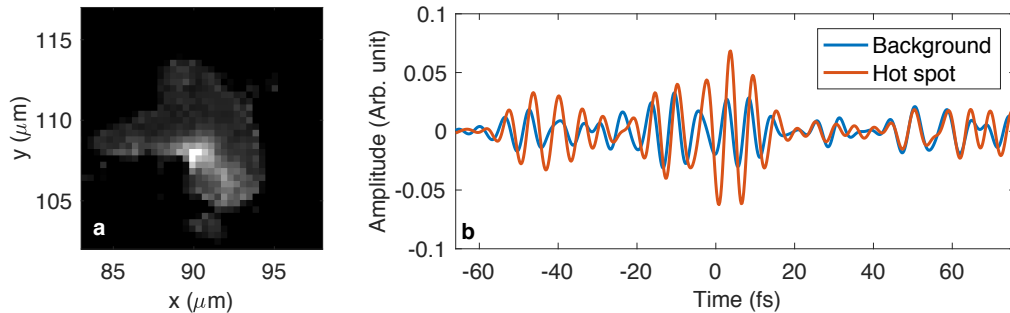


Fig. 1: Image of the peak intensity as a function of space in a collection of micron-scale silver particles. A hot spot is visible near a sharp feature in one of the structures, corresponding to a sub-wavelength enhanced region, in (a). The electric field waveform is obtained for each pixel in the image simultaneously – the waveform on the hot spot is compared to the background electric field transmitted through a region without any structures in (b).