

NANOSCALE IMAGING

Tech ID: 24800 / UC Case 2015-107-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,161,890	12/25/2018	2015-107

BRIEF DESCRIPTION

Cathodoluminescence (CL) is used for nanoscale imaging by detecting the light generated in the sample by the application of an electron beam. Direct CL has also been used to image biological samples, but typically causes damage to the sample and can result in poor imaging quality. Methods which incorporate inorganic cathodoluminescent nanoparticle labels into a biological sample result in less sample damage, but imaging with nanoparticle labels requires the electron beam to penetrate into the sample, which precludes repeated measurements or observations of dynamics.

A UC Berkeley researcher has developed an optical imaging system and method for producing nanoscale images with high resolution, images of fragile samples without damaging the samples and that can be used for repeated imaging of a sample which allows observation of sample dynamics.

SUGGESTED USES

- » Nanoscale imaging of samples (including fragile biological molecules)
- » Imaging chip
- » Near-field optical probes

ADVANTAGES

- » Nanoscale images obtained without electron beam damage to the sample
- » Multiple images of the sample can be obtained for observation of sample dynamics
- » Acquires images at rates similar to other rapid imaging techniques (e.g., dark-field scattering microscopy, total internal fluorescence microscopy) with higher spatial resolution

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- [Stroboscopic Universal Structure-Energy Flow Correlation Scattering Microscopy](#)

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INVENTORS

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OTHER INFORMATION

KEYWORDS

imaging, cathodoluminescence, near-field, electron microscopy

CATEGORIZED AS

- » **Optics and Photonics**
- » All Optics and Photonics
- » **Imaging**
- » Other
- » **Medical**
- » Imaging

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