SUPERRESOLUTION MICROSCOPY AND ULTRAHIGH-THROUGHPUT SPECTROSCOPY

Tech ID: 25210 / UC Case 2016-008-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,151,701	12/11/2018	2016-008

BRIEF DESCRIPTION

Current super-resolution microscopy (SRM) methods have excellent spatial resolution, but no spectral information. Issues such as heavy color crosstalk, compromised image quality, and difficulties in aligning 3D coordinates of different color channels mean that high-quality multicolor 3D SRM remains a challenge. Another current imaging technique, single-molecule spectroscopy, is also limited in use because current methods are low throughput, have low spatial resolution, and cannot be used effectively for densely labeled biological samples.

UC Berkeley researchers have developed a 3-D super-resolution microscopy and single molecule spectroscopy system that addresses the issues inherent to both of these imaging techniques. By synchronously measuring the fluorescence spectra and positions of millions of single molecules within minutes, both spectrally resolved SRM and ultrahigh-throughput single-molecule spectroscopy are made possible.

SUGGESTED USES

- Multicolor, 3D super-resolution microscopy
- Ultrahigh-throughput single-molecule spectroscopy

ADVANTAGES

- Works as stand-alone system or module added onto an existing super-resolution microscopy system
- No crosstalk between different color channels
- 3D images of different color channels automatically aligned
- High throughput

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Facile, Excitation-Based Spectral Microscopy For Fast Multicolor Imaging And Quantitative Biosensing
- SpeedyTrack: Microsecond Wide-field Single-molecule Tracking
- Direct Optical Visualization Of Graphene On Transparent Substrates

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OTHER INFORMATION

KEYWORDS

Super-resolution, microscopy, spectroscopy, 3D, multicolor, high throughput, imaging

CATEGORIZED AS

- **Biotechnology**
  - Other
- **Imaging**
  - 3D/Immersive
  - Molecular
- **Research Tools**
  - Other

RELATED CASES

2016-008-0

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