

# Terahertz near-field microscopy for sub-wavelength resolution imaging

## Enabling technology for research and exploitation of the Terahertz region of the electromagnetic spectrum

Terahertz (THz) near-field microscopy can make a large impact on development of THz technology. The sub-wavelength spatial resolution and the possibility of time-domain analysis make this method particularly useful in development of THz devices. The near-field microscopy method also opens a wide range of sub-wavelength size objects to THz spectroscopy.

In the Sensors, Systems and Circuit's group, Dr Oleg Mitrofanov and his team develop THz near-field microscopy probes based on photoconductive antennas and electro-optic materials, as well as investigate applications of this new technology to THz device research and to basic scientific research. Their recent application studies have been focused on low-loss waveguides for THz waves and on the use of THz surface plasmon waves.

### Other technologies that Dr Mitrofanov is currently working on include:

- THz time-domain spectroscopy
- organic electronics
- two-photon excitation spectroscopy

### Dr Mitrofanov's areas of expertise include:

- terahertz technology
- optics
- semiconductor device physics
- scanning probe microscopy
- optical and far-infrared spectroscopy



Dr Oleg Mitrofanov,  
Sensors, Systems  
and Circuits Group

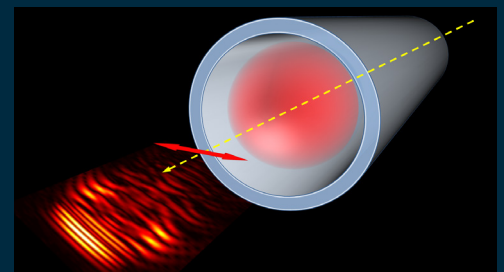
Supported by The Royal Society and EPSRC

### Applicable to:

- Photonics
- Communications
- Nanotechnology

### Partner Companies:

- None at present



### Contact Details:

Dr Oleg Mitrofanov  
Department of Electronic and  
Electrical Engineering,  
University College London,  
Torrington Place,  
London WC1E 7JE

Email: [o.mitrofanov@ee.ucl.ac.uk](mailto:o.mitrofanov@ee.ucl.ac.uk)

Tel: +44 (0)20 7679 3128

Fax: +44 (0)20 7388 9325