



Meta-microscopy device for phase contrast imaging

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Experience:

Name of School	Academic degree	Duration (from/to)
College of Optical Sciences, University of Arizona	Ph. D	2004/08~2008/09
College of Optical Sciences, University of Arizona	M.S.	2004/08~2007/06

Affiliation	Title	Period
Current Position:		
Institute of Medical Device and Imaging	Professor	2019/08-present
Former Position:		
Institute of Medical Device and Imaging	Associate Professor	2015/08~2019/07
Molecular Imaging Center	Division Chief	2012/01~2017/07
Opto-electronic Biomedical Research Center	Assistant Professor	2011/08~2015/07
Mechanical Engineering, MIT, USA	Postdoctoral Associate	2008/12~2011/07

Market Needs:

Currently, existing optical phase contrast imaging systems are bulky and challenging to miniaturize. Our proposed optical system, composed of lightweight and flat optical components, effectively reduces the overall size of the equipment.

Our Technology:

This invention designs and fabricates optical components—metasurfaces—that can manipulate the optical properties of laser light (such as amplitude, phase, and polarization). These components are applied to optical phase contrast imaging systems. Furthermore, integrating AI deep models with the system reduces costs and enhances operational flexibility.

Strength:

Integrating ultra-thin, lightweight, and flat optical components, metasurfaces, into the imaging system significantly reduces the size of the system.

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The inclusion of AI deep models helps lower the construction costs of the system. The material selection and design parameters of the metasurfaces can be flexibly adjusted based on the requirements of the observed object, accommodating various environmental conditions.

Competing Products:

Usual diffractive optical elements, spatial light modulators, and phase contrast imaging system.

Intellectual Properties:

Our group has decades of research experience in related fields of metasurface and microscope, and has published dozens of related international journals.

Contact (do not need to fill out):

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