



## METASURFACE-BASED DEVICE FOR GENERATING ABRUPT AUTOFOCUSING BEAM

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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:

Existing devices and technology to shape beams for laser surgery instruments are bulky. There is huge scope for improvement for designing compact optical elements for laser surgery instruments. Our method can fill this gap.

### Our Technology:

This invention relates to the applications of nanophotonics metasurface technology for laser surgery instruments. A compact metasurface device is designed for generating an abrupt autofocusing beam (AAF) that can directly integrate with any light source used for laser surgery.

### Strength:

Great design flexibility, ultra-compact size, lightweight, broadband wavelength

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tunability, and wide application range. Ability to operate for continuous and pulsed laser source in the visible region. First claim for laser surgery and specimen treatment using AAF beams generated from an ultracompact metasurface optical element.

**Competing Products:**

Usual diffractive optical elements and spatial light modulators.

**Intellectual Properties:**

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

**Contact (do not need to fill out):**

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