

# Single-shot field-dependent adaptive optical correction of a gradient refractive index lens

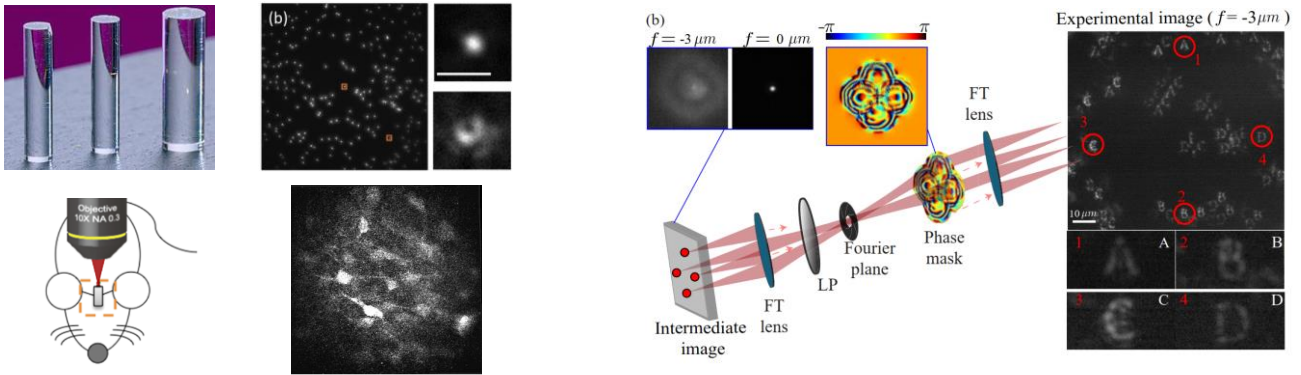
Dafei Xiao<sup>1</sup>, Boris Ferdman<sup>1</sup>, Yoav Shechtman<sup>1, 2</sup>

1- Russell Berrie Nanotechnology Institute

2-Department of Biomedical Engineering & Lorry I. Lokey Center for Life Sciences and Engineering

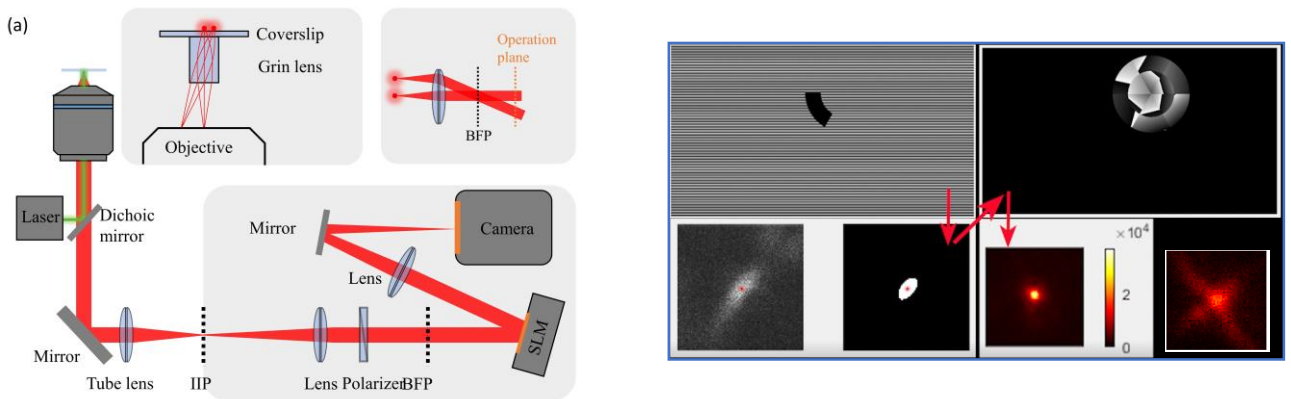
## Introduction

Gradient refractive index lenses have strong **field-dependent aberrations** which deteriorate image quality and limit the effective field of view. Here we provide a single-shot correction technique.



## Method: optical setup and correction procedures

We displace the correction plane away from the pupil plane, which allows us to conduct shift-variant wavefront shaping, and segment the correction plane to detect the distorted wavefront through an image metric (centroid shifting).



## Results

Comparison of different segmentation approaches and an example of single-shot multipoint correction.

