

# FOURIER OPTICAL ANALYSIS OF GRIN ARRAY IMAGING

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## OBJECTIVES

- Fourier optical imaging theory
- Improve the depth of field
- Analyze misalignment
- Analyze and correct aberrations

## APPROACH

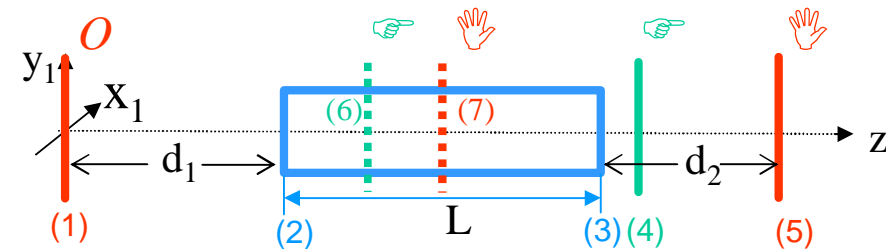
### • THEORY

Fourier optics analysis coupled with geometrical optics for both a single GRIN rod and GRIN array

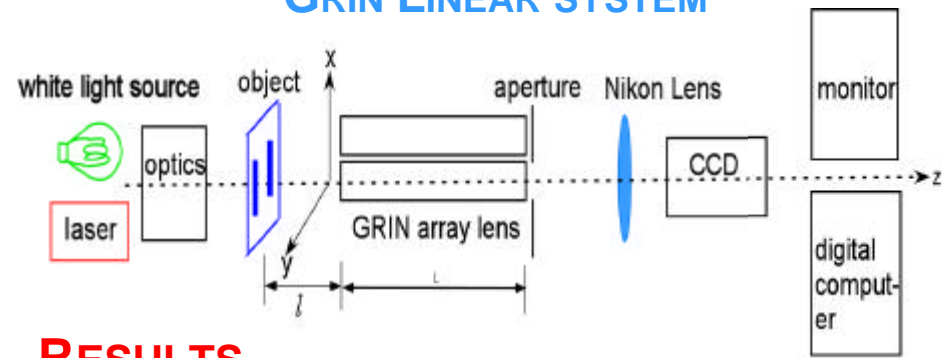
### • EXPERIMENT

Measure LSF, MTF and Fourier transform pattern

## EXPERIMENTAL SETUP



## GRIN LINEAR SYSTEM



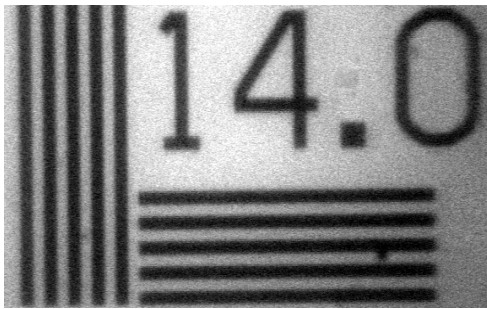
## RESULTS

- GRIN lens system is analyzed by Fourier optics
- PSF for a single GRIN rod and the whole array
- GRIN lens has Fourier transform planes (6;4)

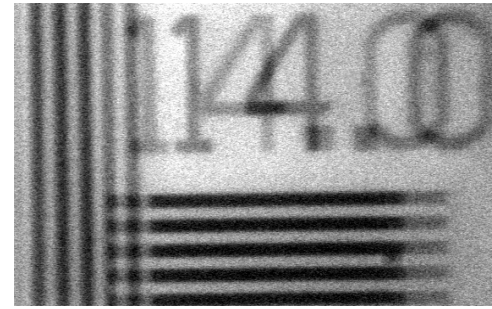
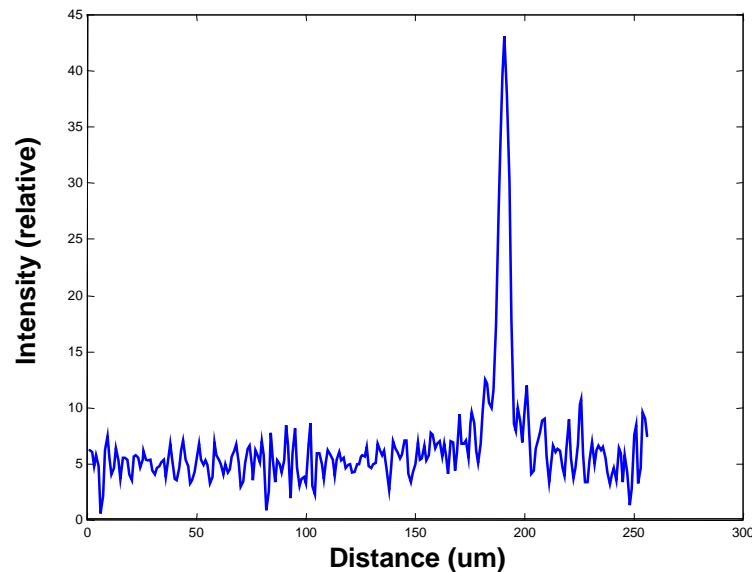
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# MEASUREMENT OF LSF AND MTF

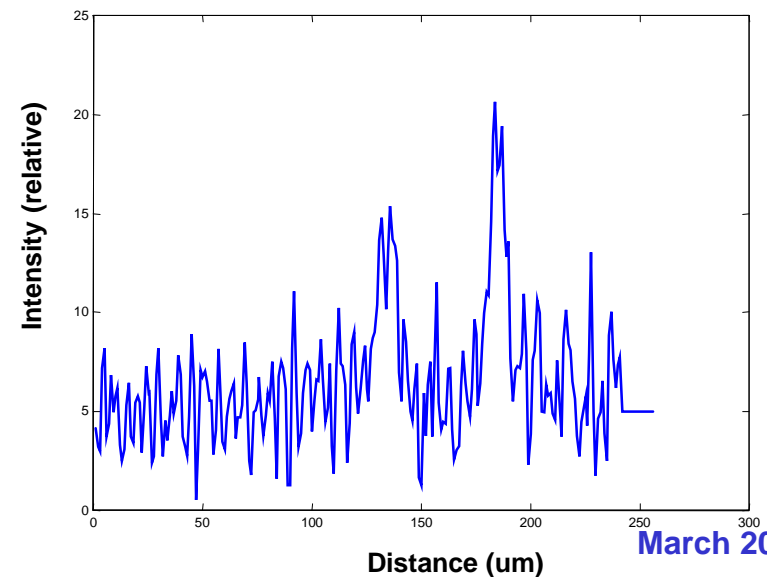
- Knife edge as the object
- Production quality test (misalignment)



LSF



LSF



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