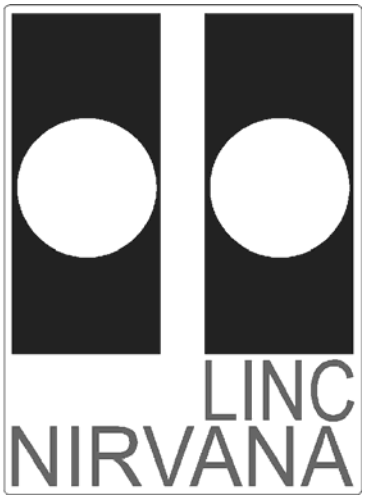
LINC-NIRVANA

The **L**BT **IN**terferometric **C**amera and
Near-**I**nfra**R**ed / **V**isible **A**daptive
i**N**terferometer for **A**stronomy

A collaborative project of the MPIA Heidelberg, INAF-Arcetri,
Universität zu Köln, and MPIfR Bonn
http://www.mpia.de/LINC



LINC-NIRVANA

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Effect of rms wavefront error

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Issue	Date	Section/ Paragraph Affected	Reasons / Remarks
0.1	dd Month 2005	All	new document

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This document shows the effect of the rms wavefront error to the MTF and PSF.

2 Applicable documents

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4 Introduction

The effect of rms wavefront error to the MTF and PSF is simulated by using a ZEMAX setup of the LINC-NIRVANA entrance pupil in combination with a perfect lens (a lens witch does not introduce and wavefront error) and a Zernike Sag surface. The Zernike surface is used with the first 10 coefficients which are all set to identical values in order to distort the wavefront.

All calculations for wavelength 1.0 µm and on-axis field.

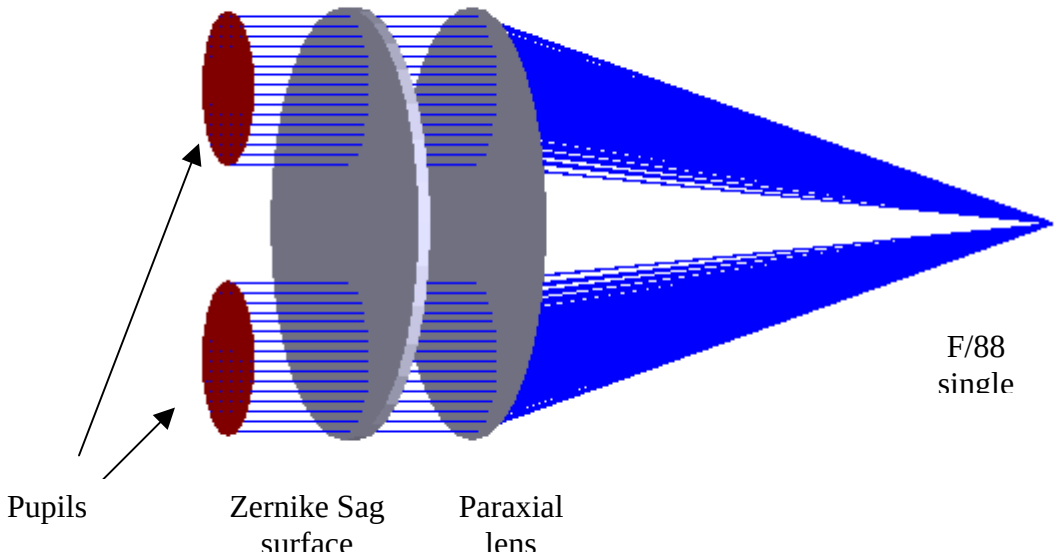

Figure 1: Overview

5 Calculations

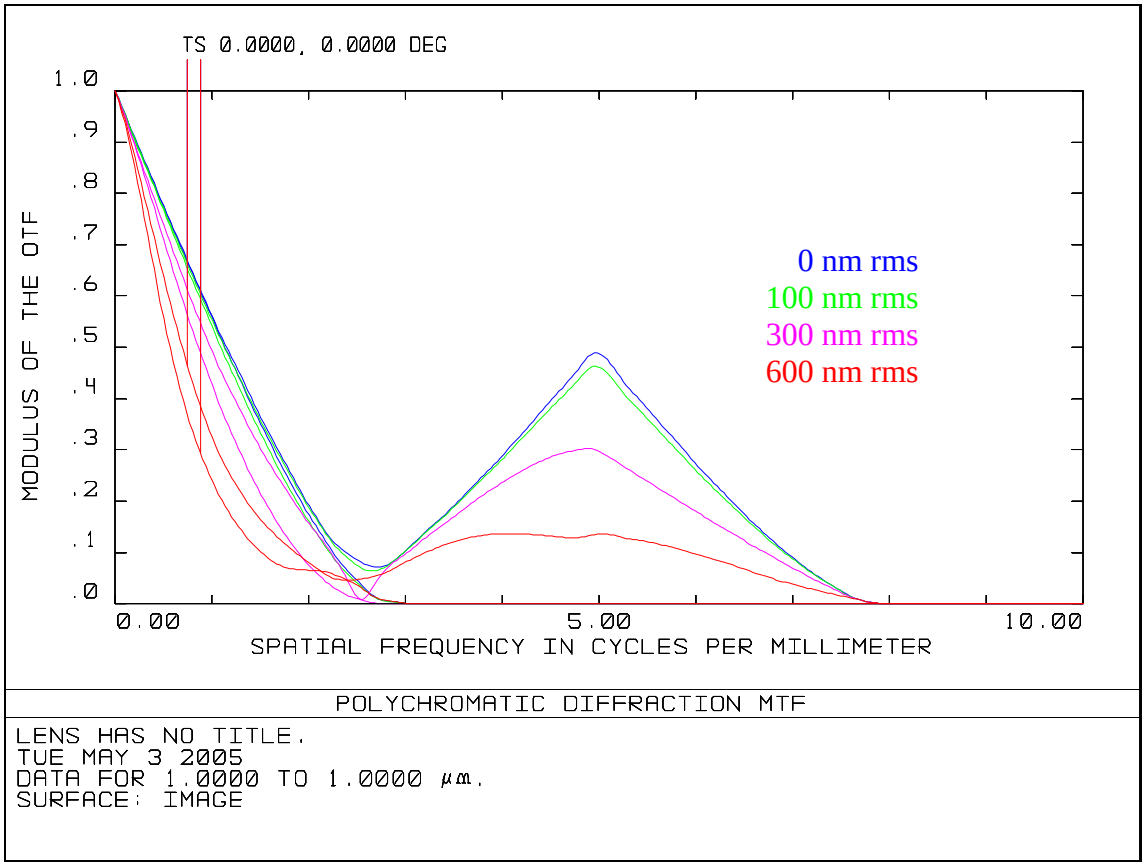

Figure 2: MTF plot for various rms wavefront errors

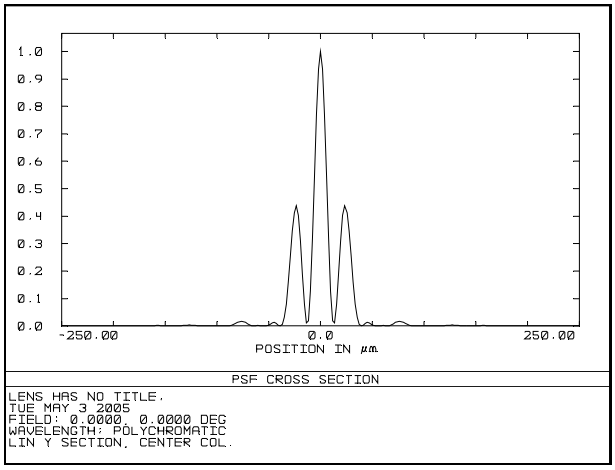

Figure 3: 0 nm rms, perfect PSF

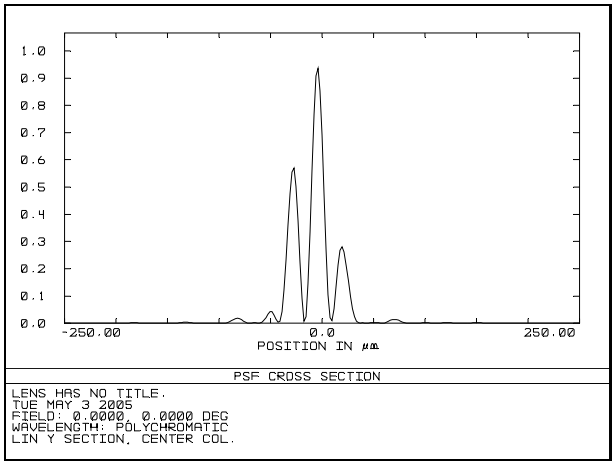

Figure 4: 100 nm rms, all Zerinke to 8.5E-5

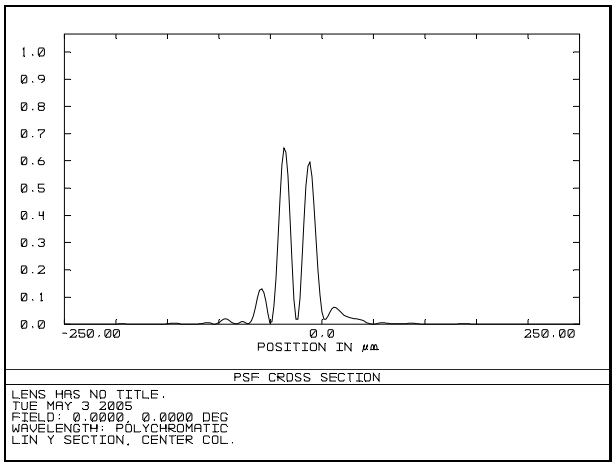

Figure 5: 300 nm rms, all Zernike to 2.5E-4

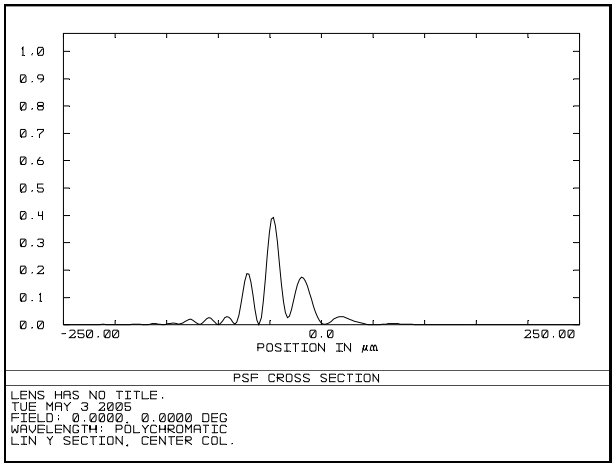

Figure 6: 600 nm rms, all Zernike to 5E-4