

Lectures Notes on Optical Design using Zemax OpticStudio

Lecture 23 *MCE in Non-Sequential Mode*



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Content

In this chapter, we will see how to use Multiple Configuration Editor in NonSquential Mode.

- MCE
- MCE Operands
- Examples

MCE

In some cases, we may have more than one configuation in our system. As we have seen before, any system can be "switched" via the MCE in Zemax. We can change

- Aperture size, type
- Material
- Wavelength
- Position
- Angular Position
- etc.



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Example

The aim of this example is to build a simple system to be used for visible and LWIR imaging. You can download it from the course web page. (mce_example.zos).

We have

one primary concave mirror (R = 800 mm, aperture 80 mm)

Two detectors (visible and LWIR sensors)

Two rectangle (secondary mirror, the one closer to source absorbs the incoming rays).

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Visible (λ = 0.55 µm)

LWIR (λ = 10 µm)



We want to get best spot size for both system. So, y position of both detectors must be variable. Now, open MCE and Merit function editors and input following data.

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7	NSTR -	1	0	0	0	0	0.000		0.000	0.000	0.000	0.000	
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Then, click on optimize button.

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After opimization, we will have best focus locations of mirrors for both visible and LWIR ranges. You can look at detector viewers if you get best foci or not!

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	Configuration 1 of 2		Configuration 2 of 2

Exercise

The figure illustrates an optical system designed to provide two different beam expansion options (2x or 4x). The input HeNe laser beam has a size of 5 mm.

Implement this system in Zemax using the MCE editor.

Hint: You can select suitable lenses from Lens Catalog for beam expanders and can use flat mirrors to steer beam direction.

