Analog Logic Gate of Structured Light based on Nonlinear Optical Networks

Second Cycle Integrated Project

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Master Student

Supervisor:
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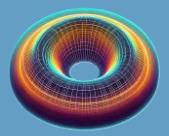


Multimode Photonics Group

TÉCNICO LISBOA

inesc mn

Thesis

AIM

Implement an analog **all-optical** system realizing logic operations

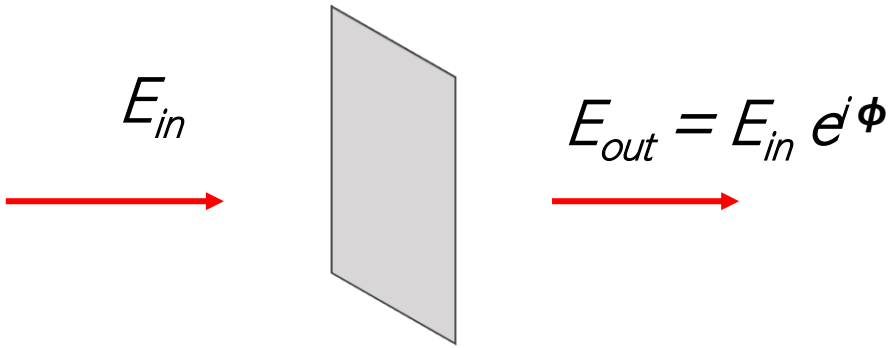
First Phase

Z-Scan

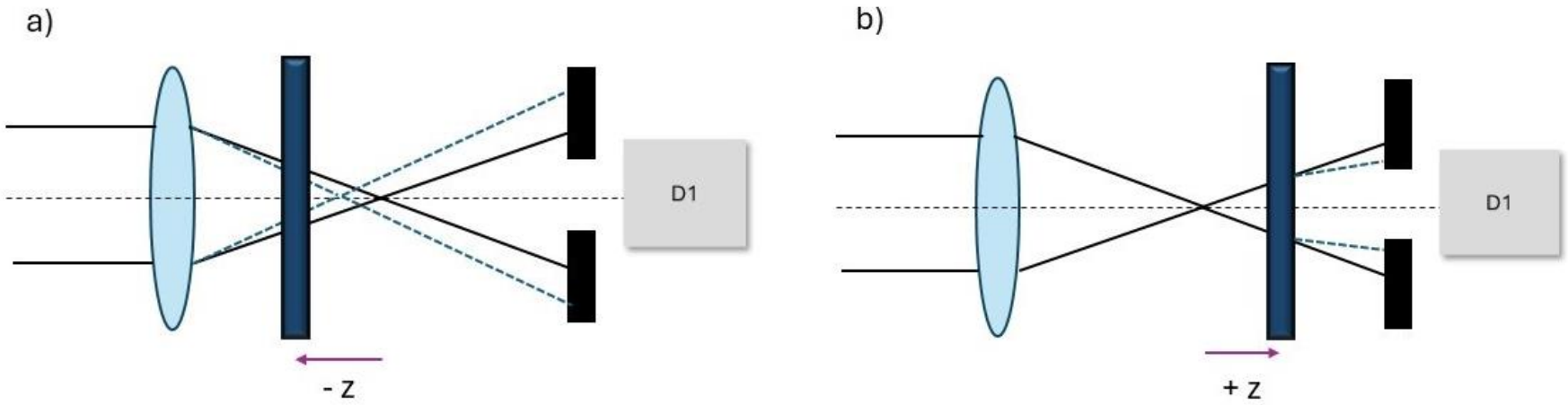
Second Phase

2x3 Decoder

Z-Scan and Kerr Effect



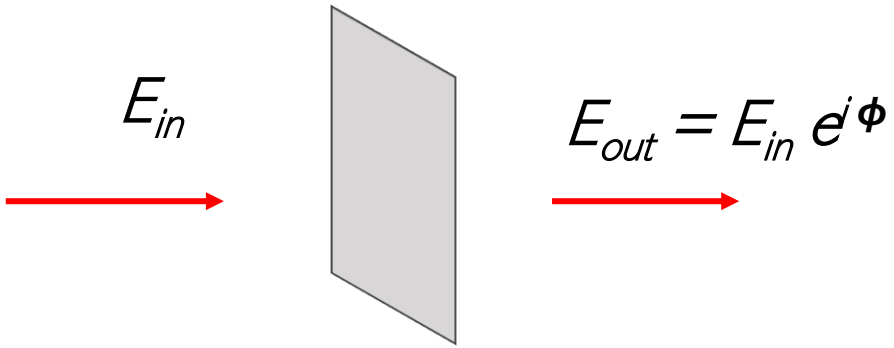
Phase Shift: $\delta\Phi = \frac{2\pi}{\lambda} n_2 L I$



Valley in T curve

Peak in T curve

Z-Scan and Kerr Effect



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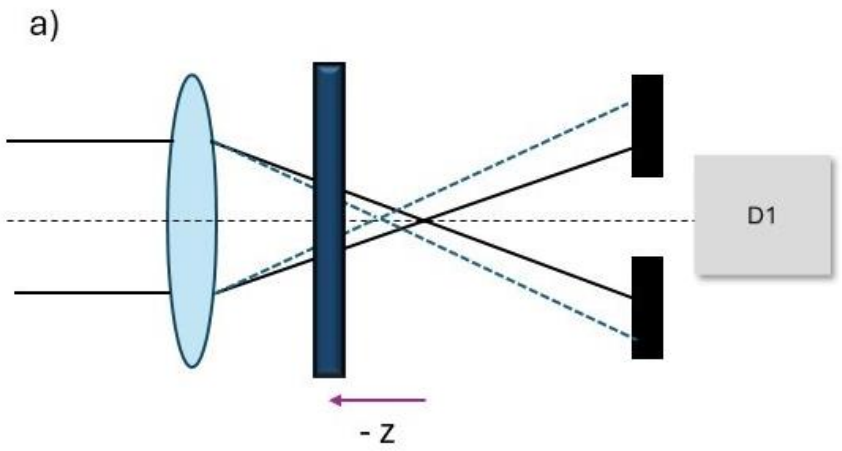
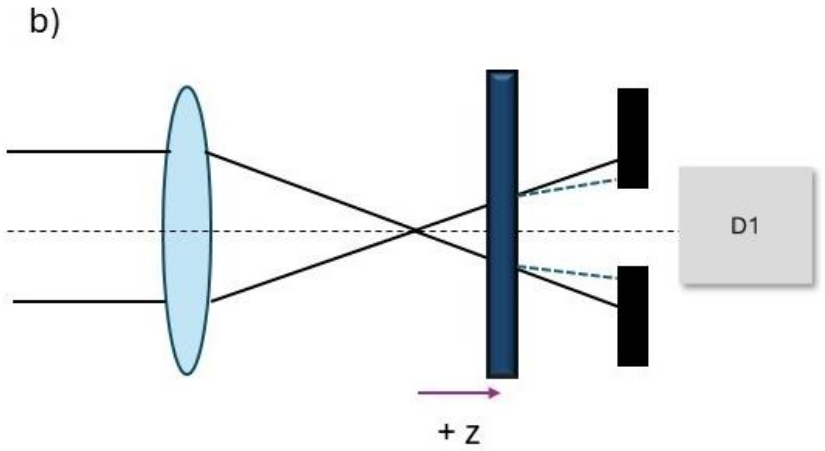
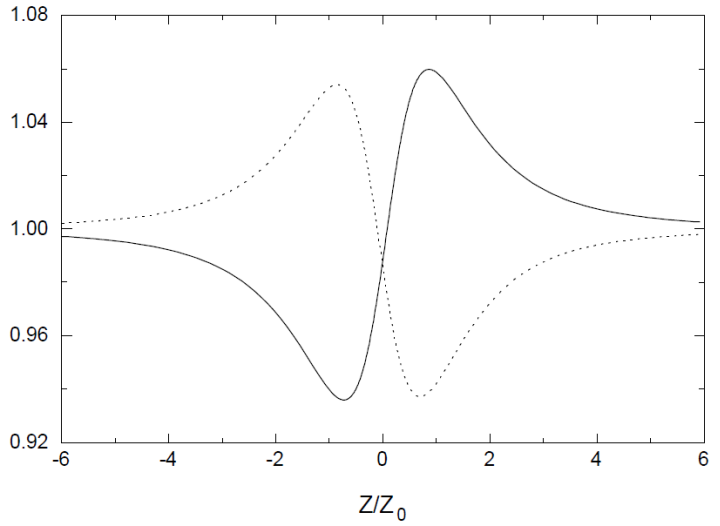


Valley in T curve

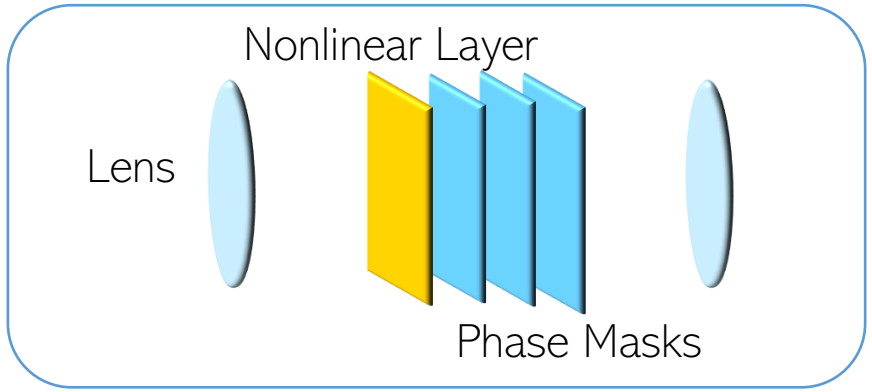


Peak in T curve



Design of the Experiment

SIMULATED



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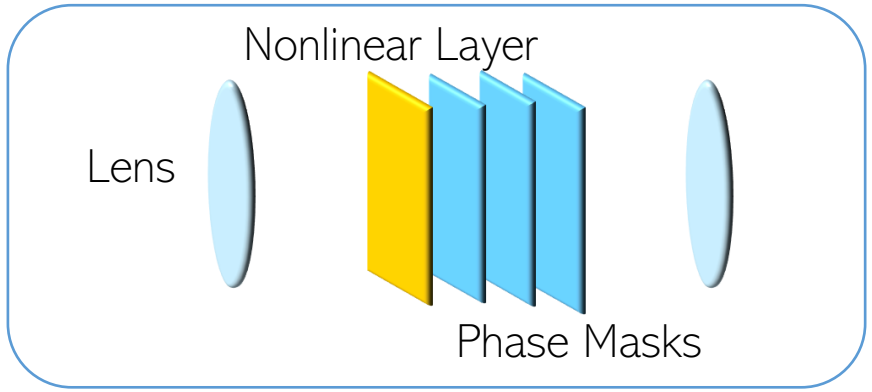

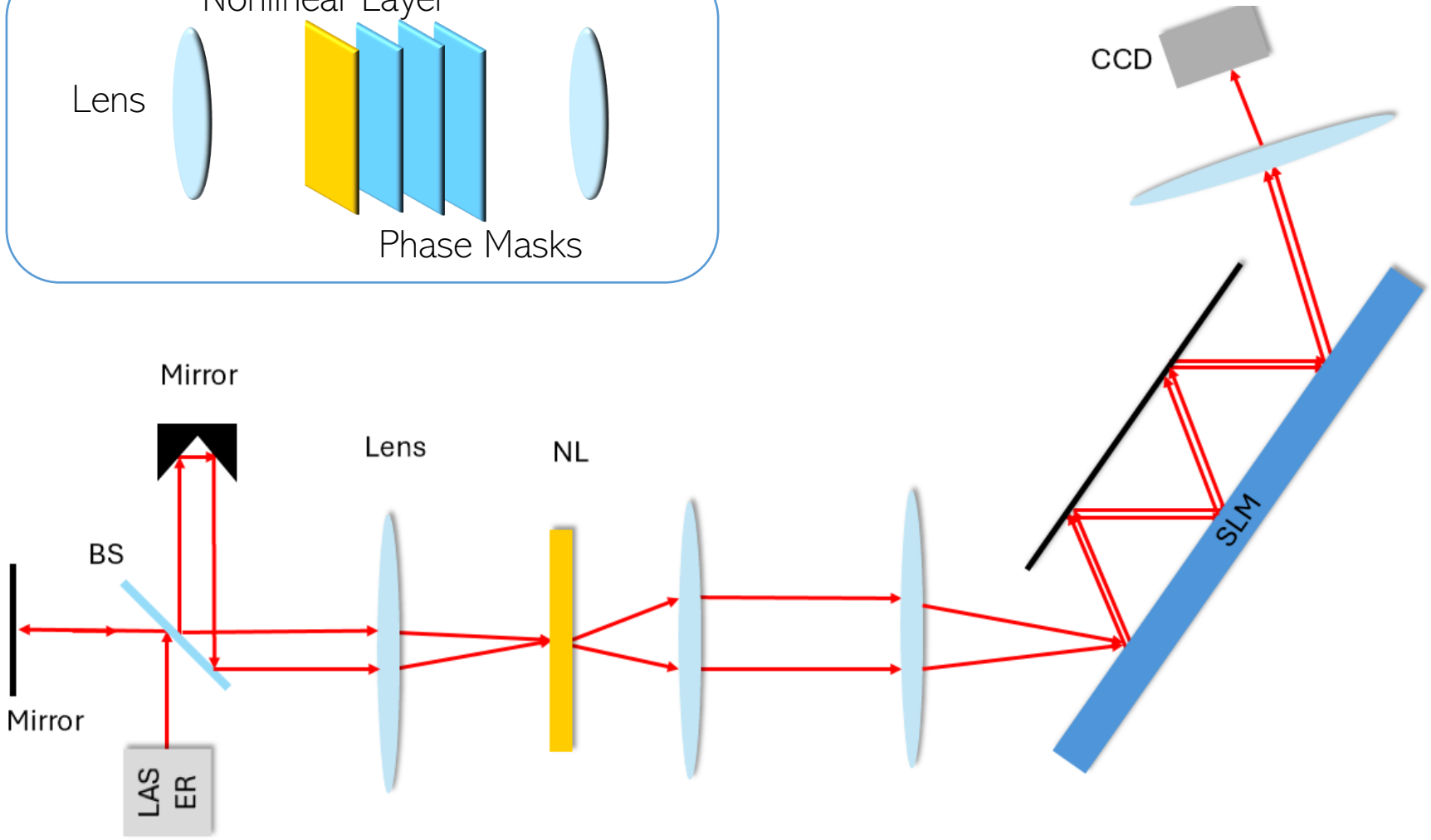

Design of the Experiment

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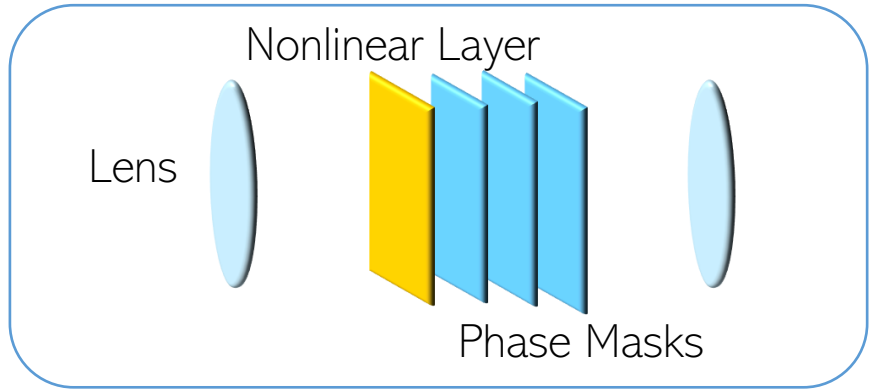

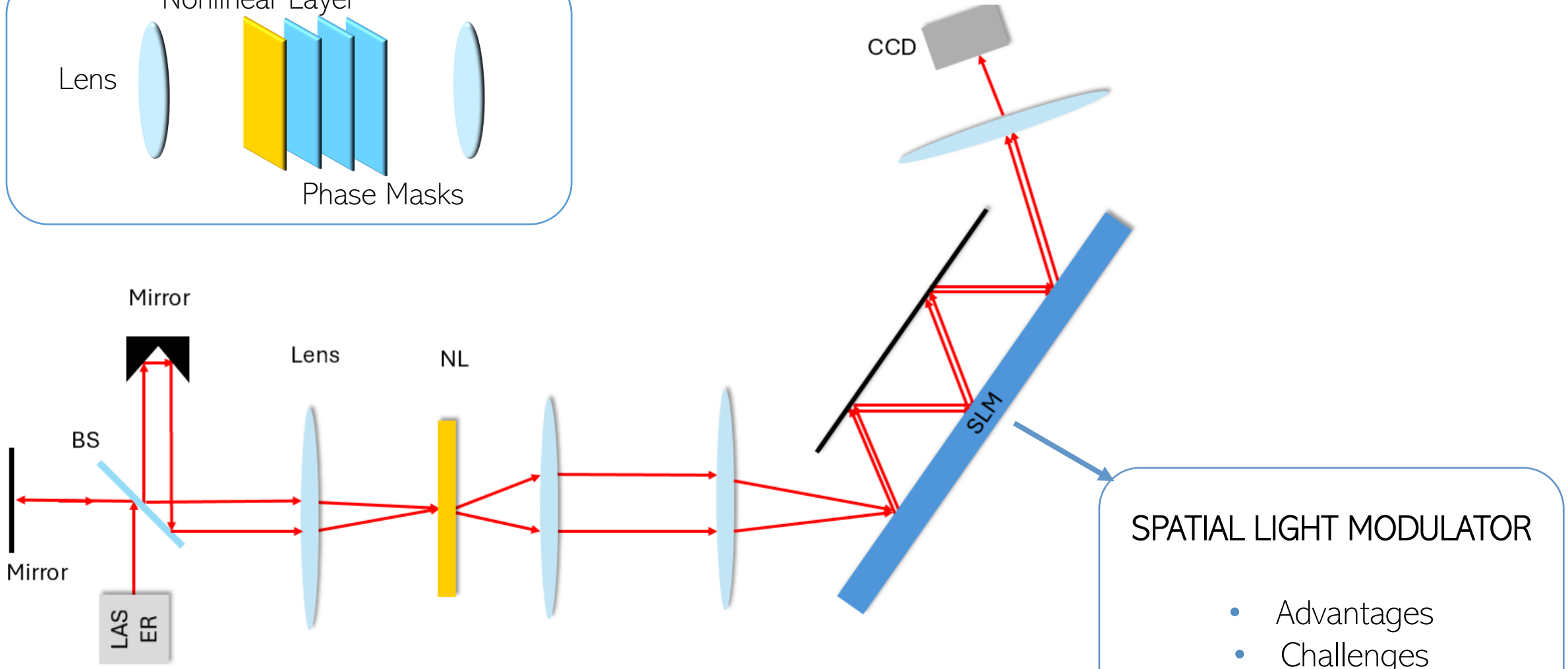

SPATIAL LIGHT MODULATOR

- Advantages
- Challenges

Thank you!