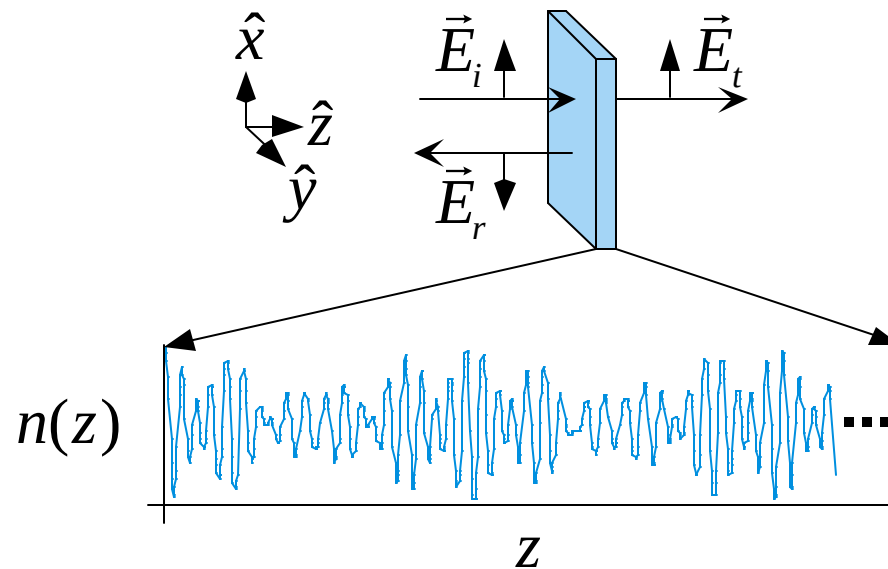


Holographic Interference Filters for IR: Fabrication

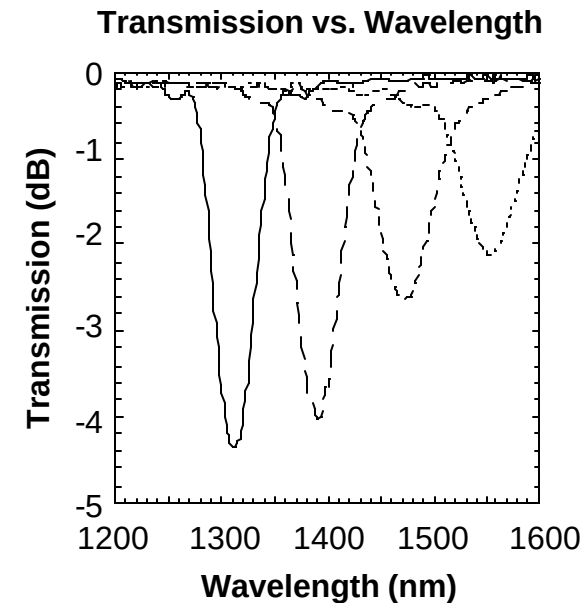
Damon Diehl
Nicholas George



Objective

Interference filters for use at IR communication wavelengths:

- Reflection filters
- Multi-band reflection filters
- Fabry-Perot transmission filters



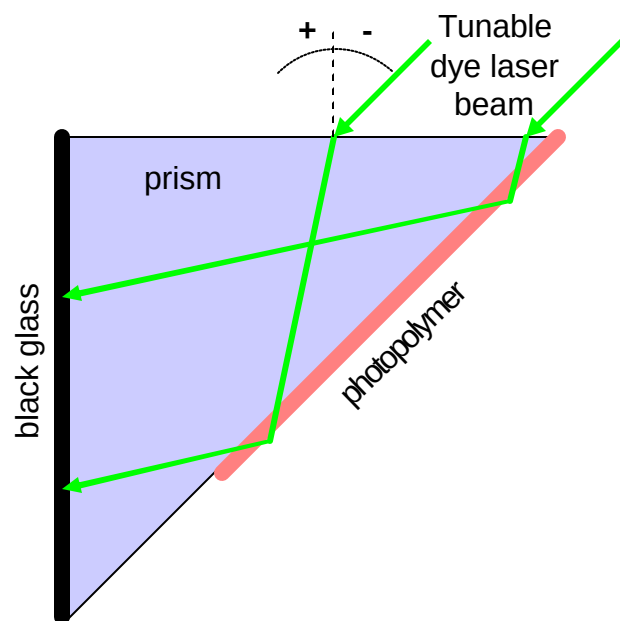
Approach

Holographic exposure techniques utilizing the following technologies:

- Photopolymer films
- Tunable dye laser
- Precisely controlled exposure angles

Holographic Interference Filters for IR: Design Curves

Damon Diehl
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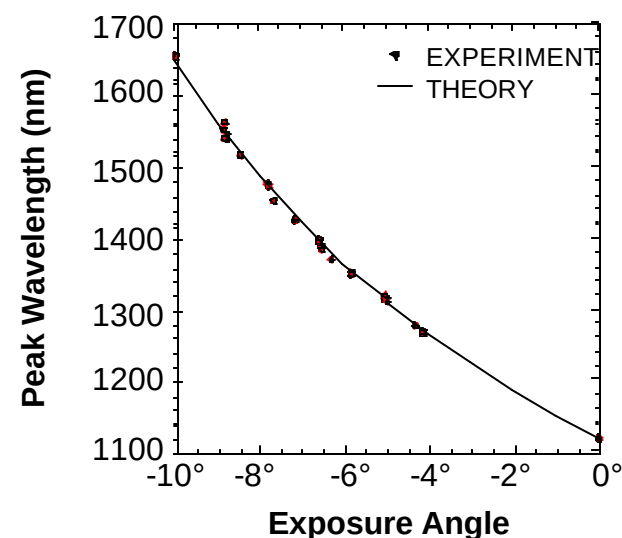


Objective

Design curves for a prism-coupled TIR system relating the following features:

- Exposure angle to Peak wavelength
- Index modulation to Bandwidth
- Thickness to Efficiency

Peak Wavelength of HIF vs. Exposure Angle



Approach

Create computer models that use the following techniques:

- Thin film decomposition
- Floquet-Bloch theory
- Finite difference, time domain
- Couple wave analysis

March 2002