

Centre for Earth Observation Instrumentation and Space Technology

CEOI-ST Emerging Technologies Challenge Workshop,
College Court, Leicester, Wed 30th April – Thu 1st May 2014

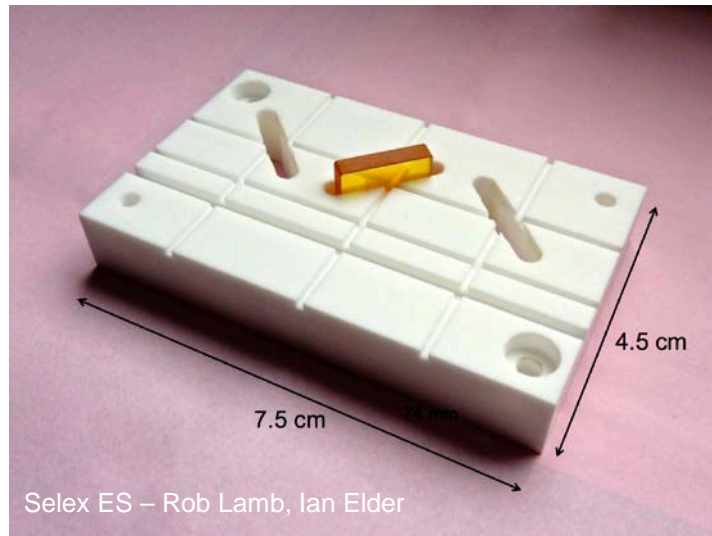
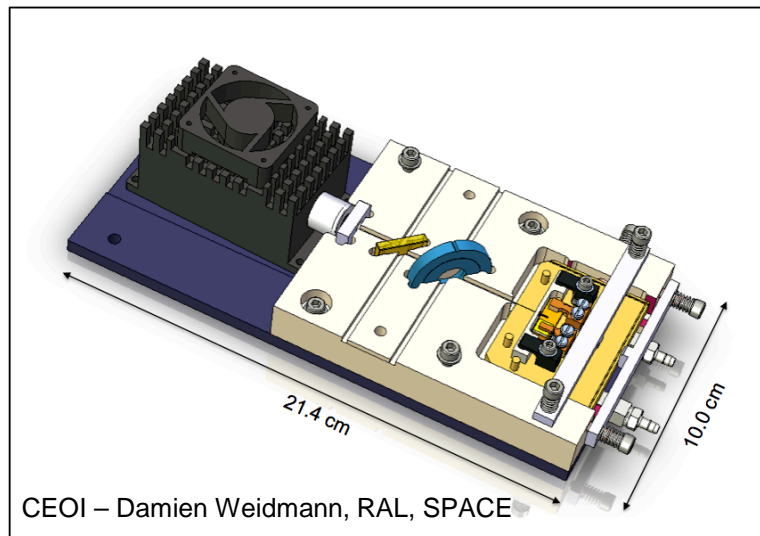
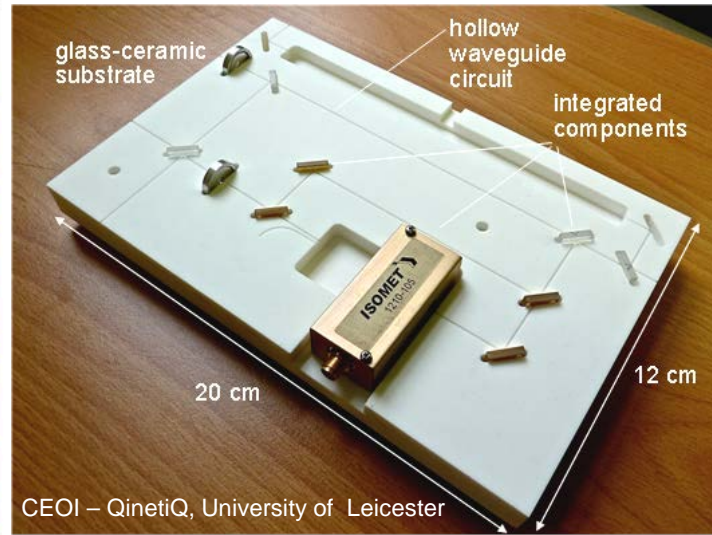
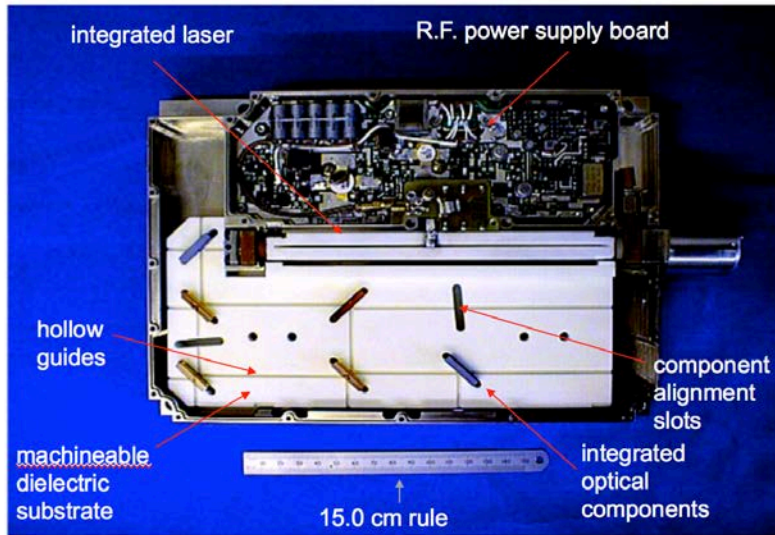
A Hollow Waveguide Michelson Interferometer: Predicted Performance Advantages

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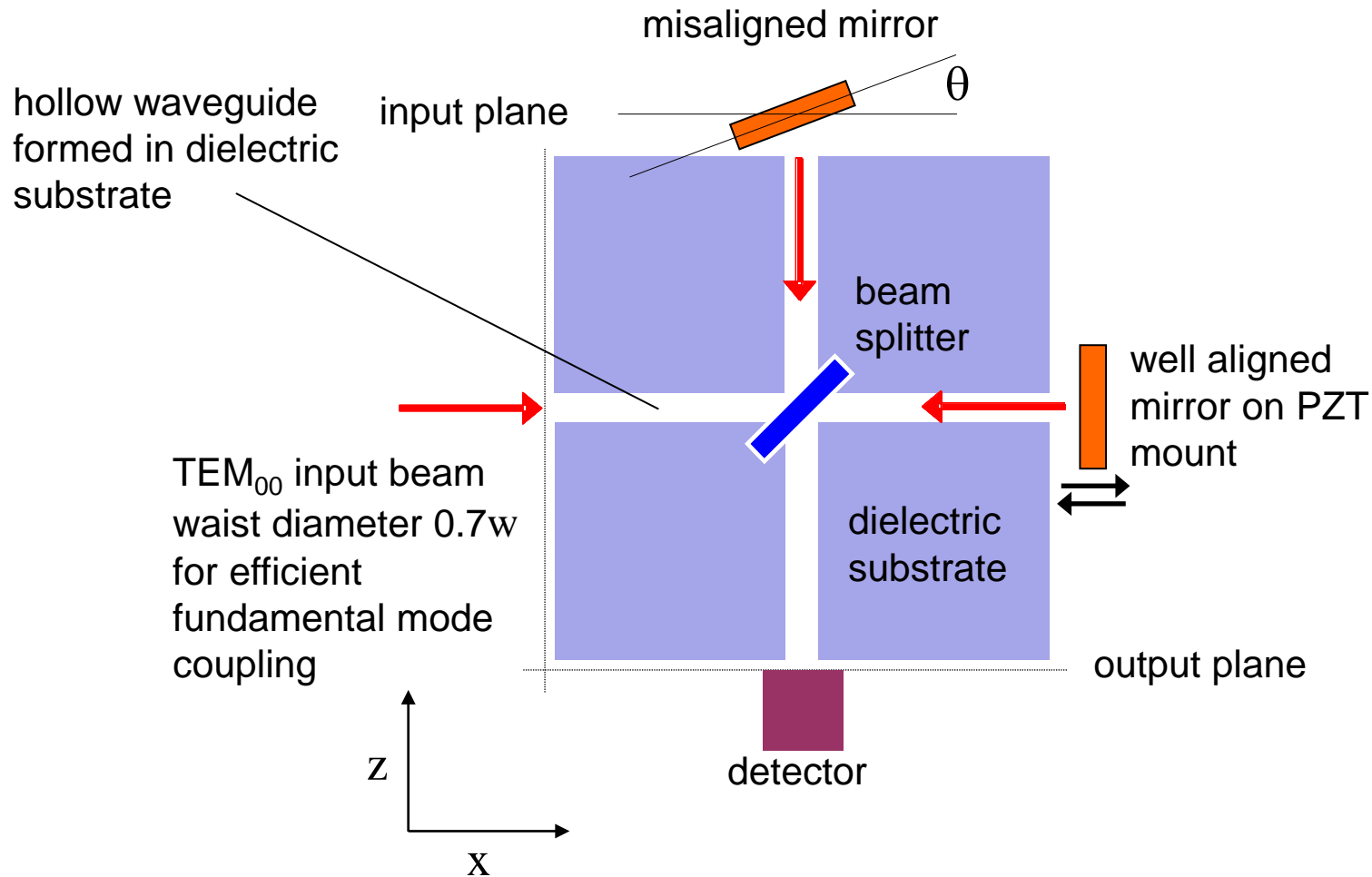
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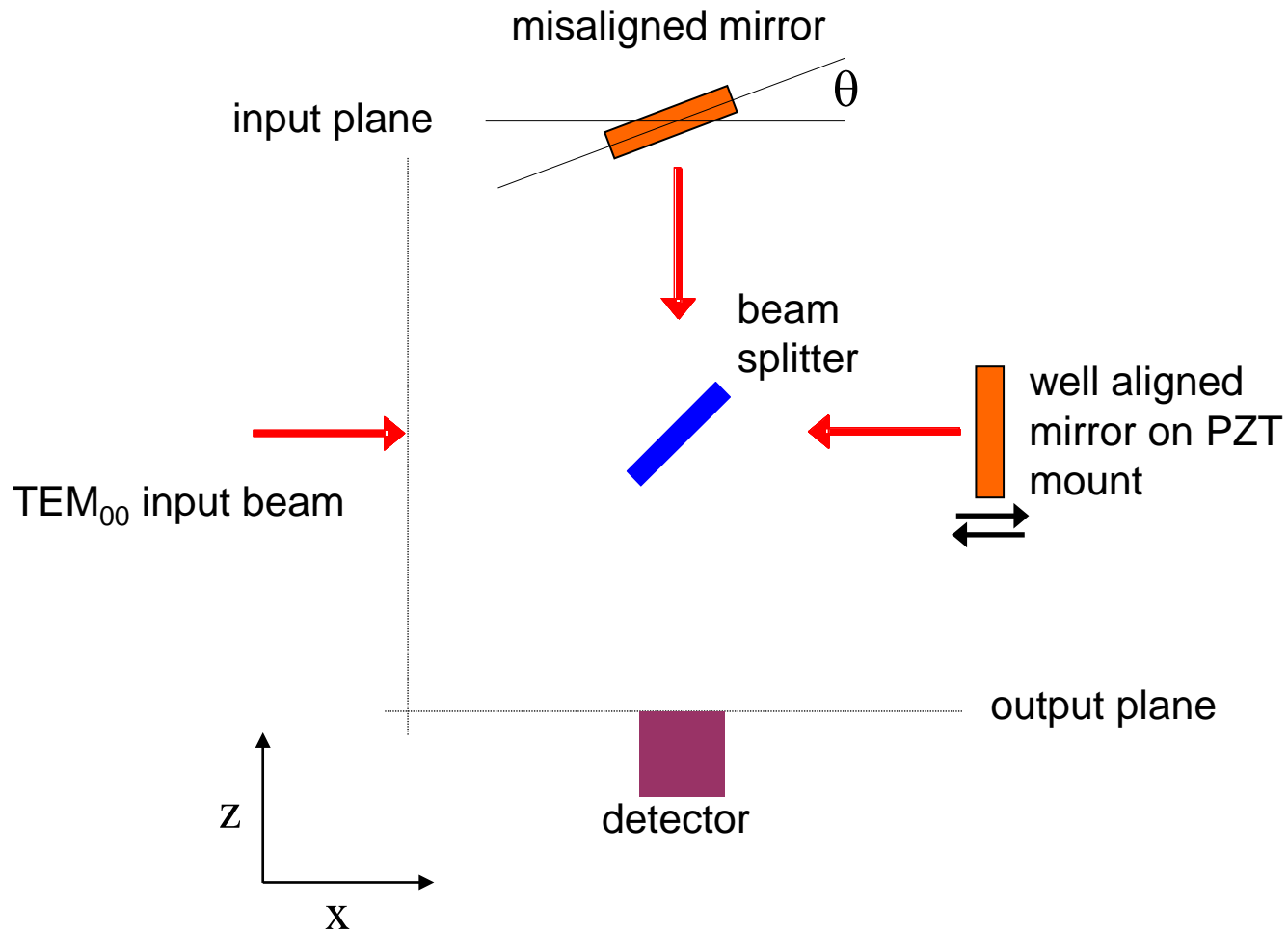
Hollow waveguide optical PCB concept



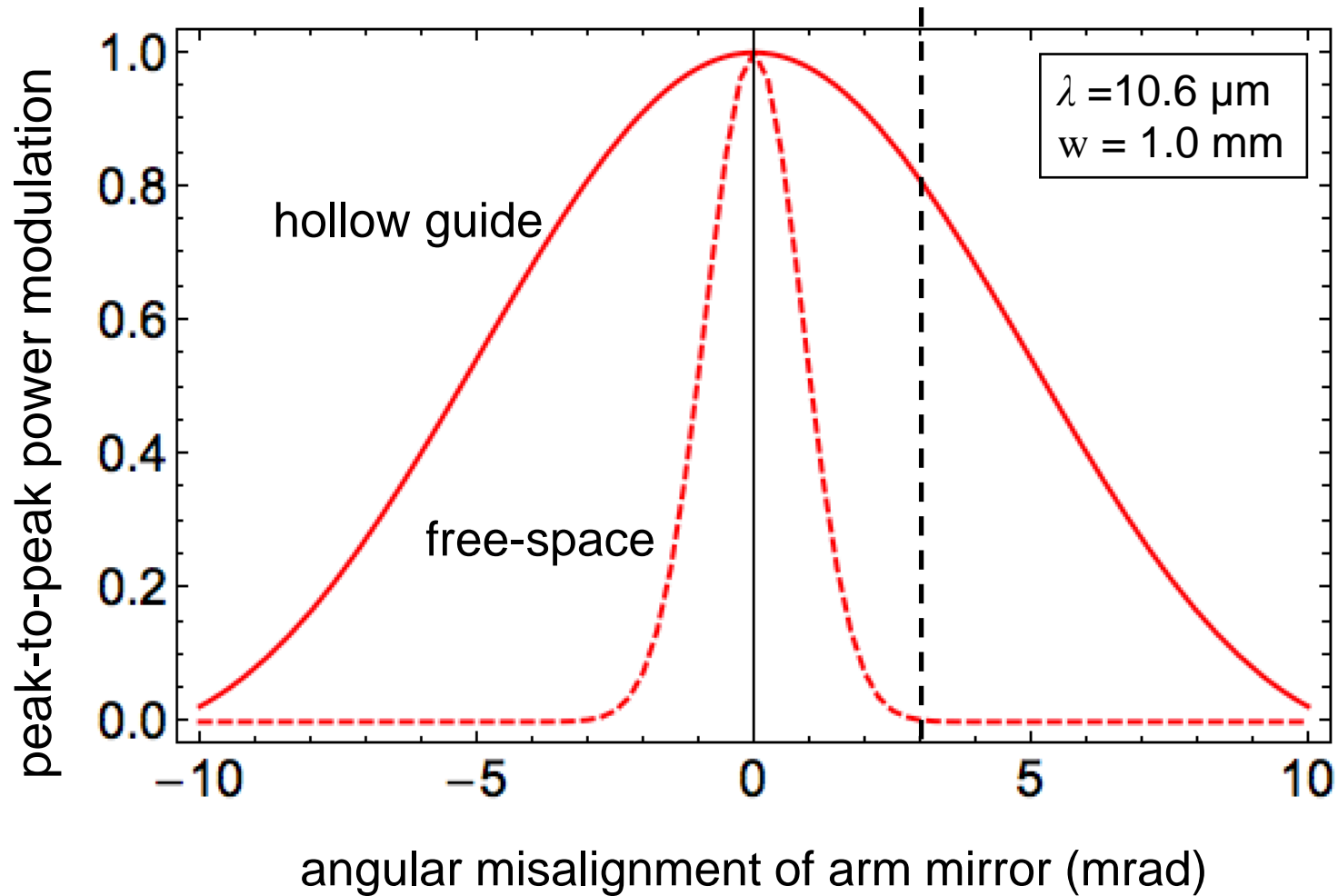
Hollow-Guide Michelson Interferometer



Free-space Michelson interferometer



Comparison of peak-to-peak power modulation as a function of angular misalignment for wavelength of $10.6\ \mu\text{m}$



Summary of Results and Potential

- Hollow waveguide implementation less sensitive to angular misalignment.
- The impact of angular misalignment will be compounded for all the interferometer components – even greater practical advantages.
- Potential to provide advances in interferometer performance for space applications – sensing, metrology, spectrometry (e.g. LISA).
- Details of the work, the calculations that have been undertaken and the plans for a practical demonstration of the approach, will be describe.

