CELINE : CELestial Infrared Nulling Experiment

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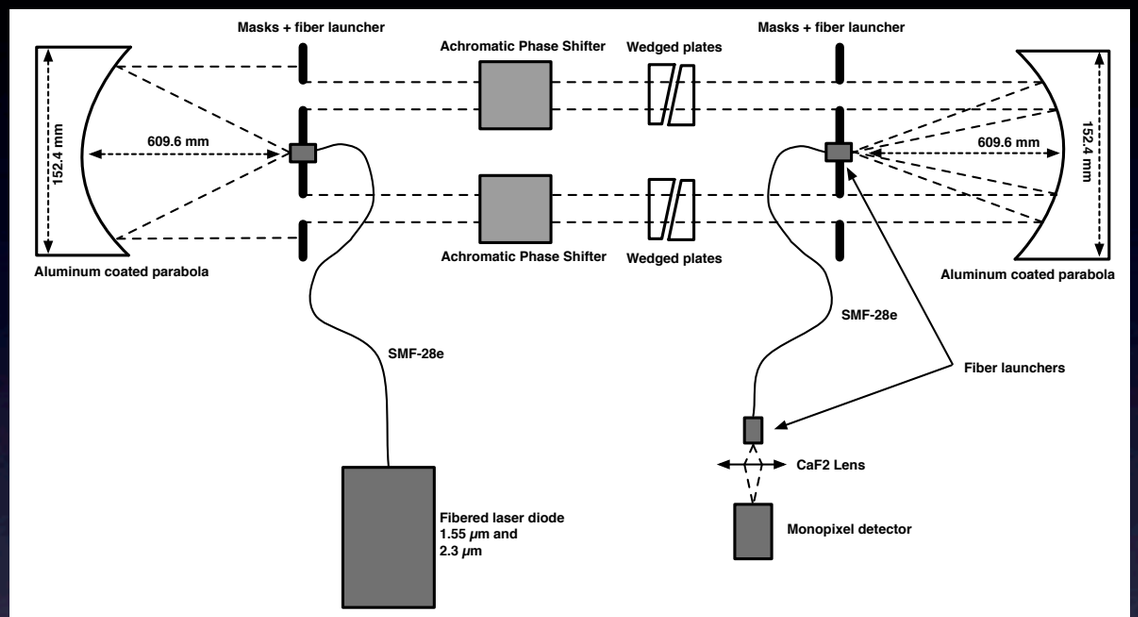
ARC meeting, 11February 2010

Introduction

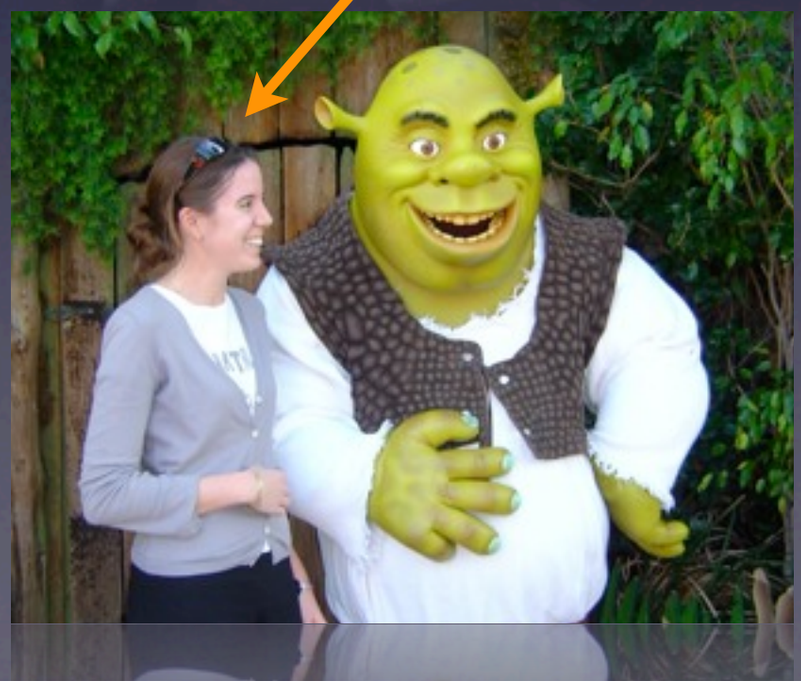
Last Year



ANE : AEOS - Hololab Nulling Experiment

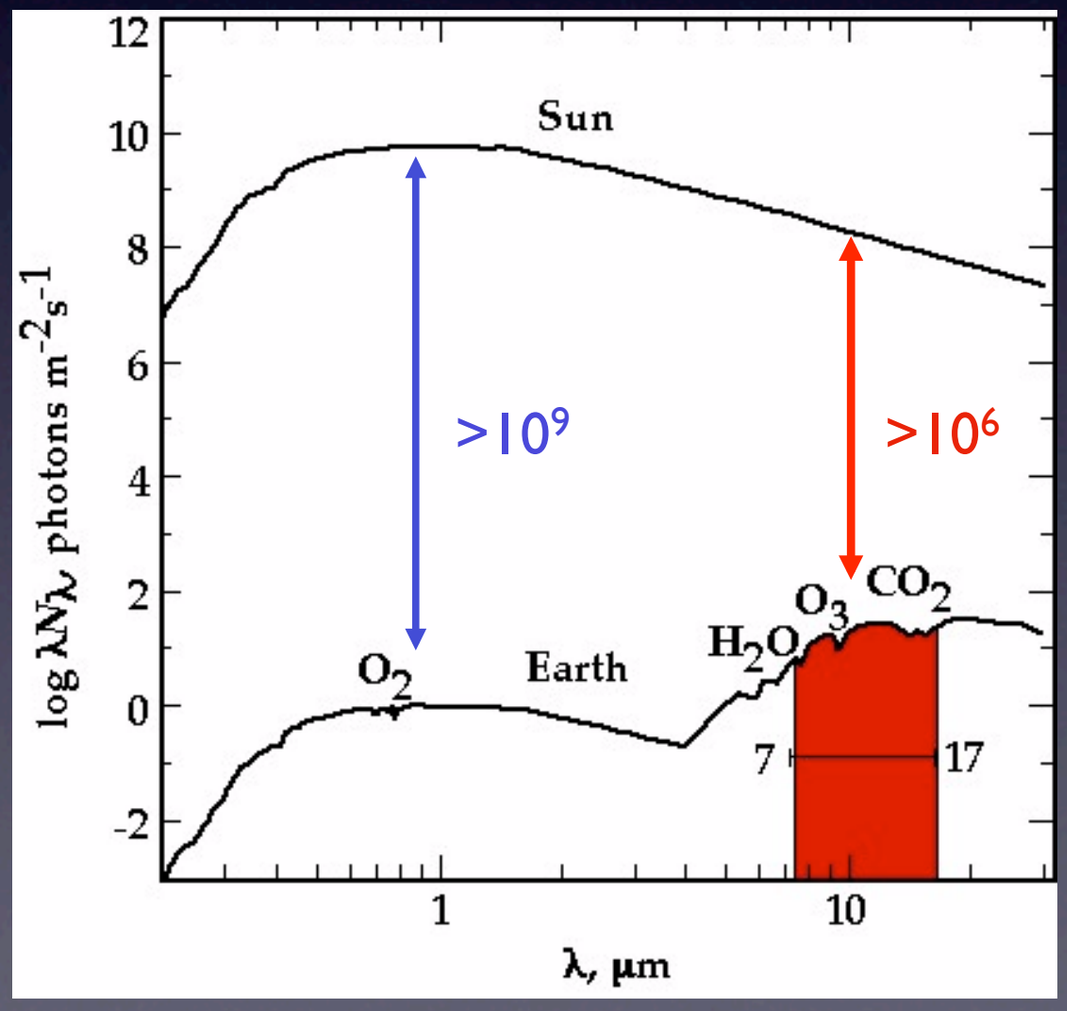
This year

CELINE



Introduction

- Direct imaging of exo-Earths:
  - Huge contrast ratio:
    - ➡ $2x10^7$ (10μm) & 10^{10} (visible)



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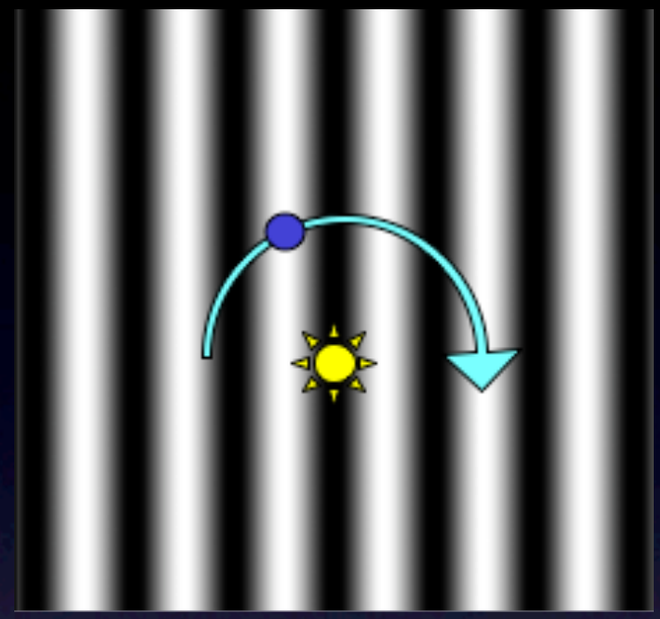

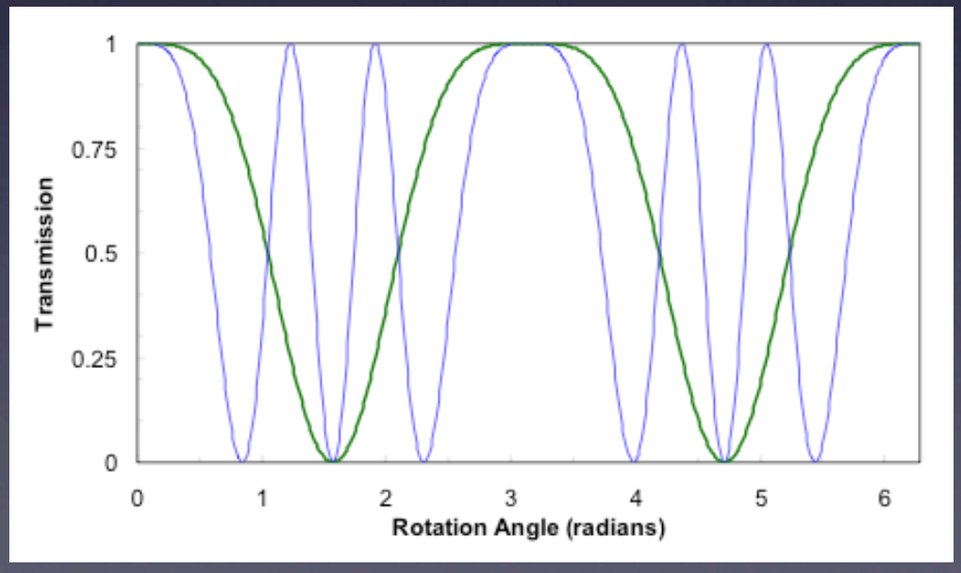

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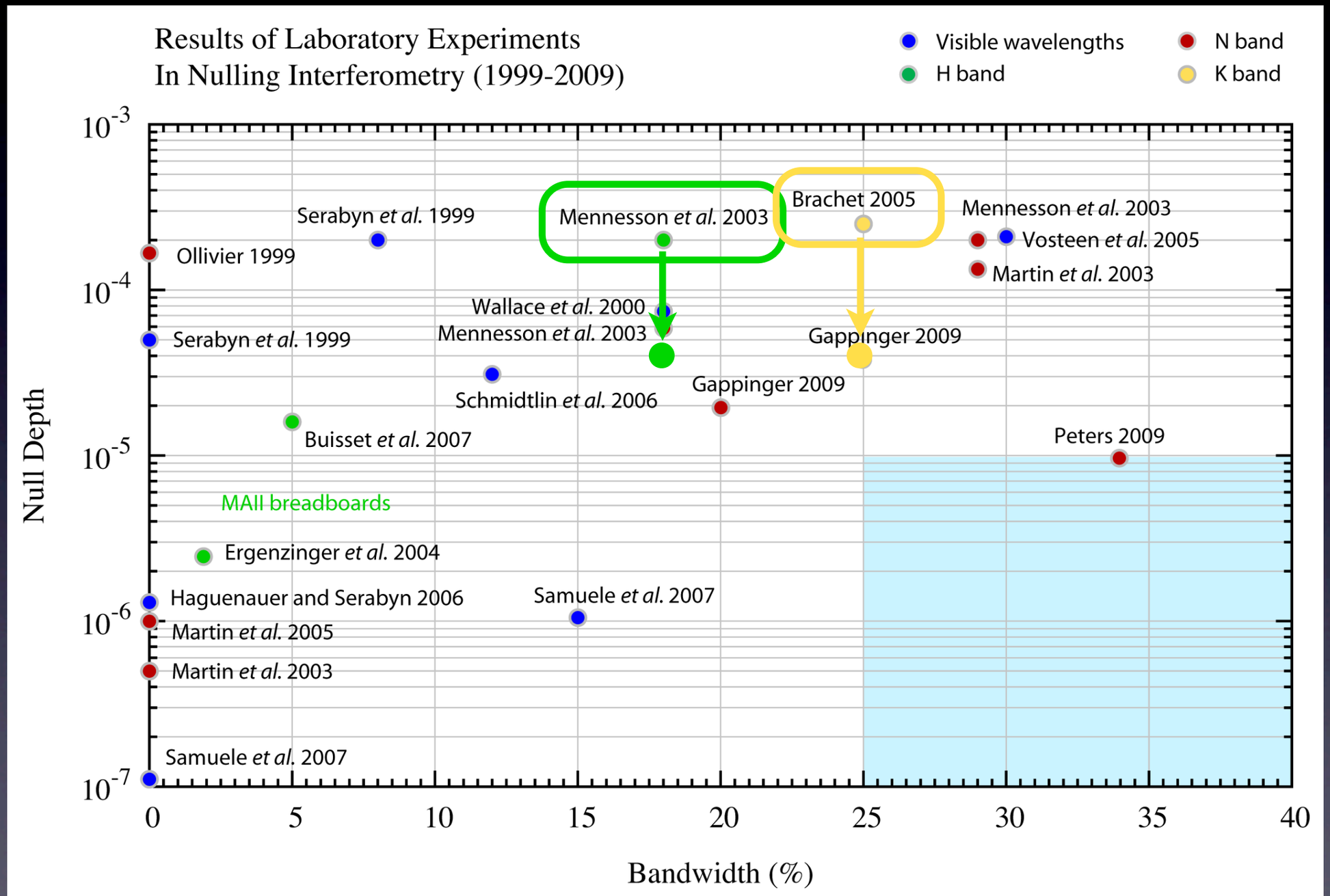
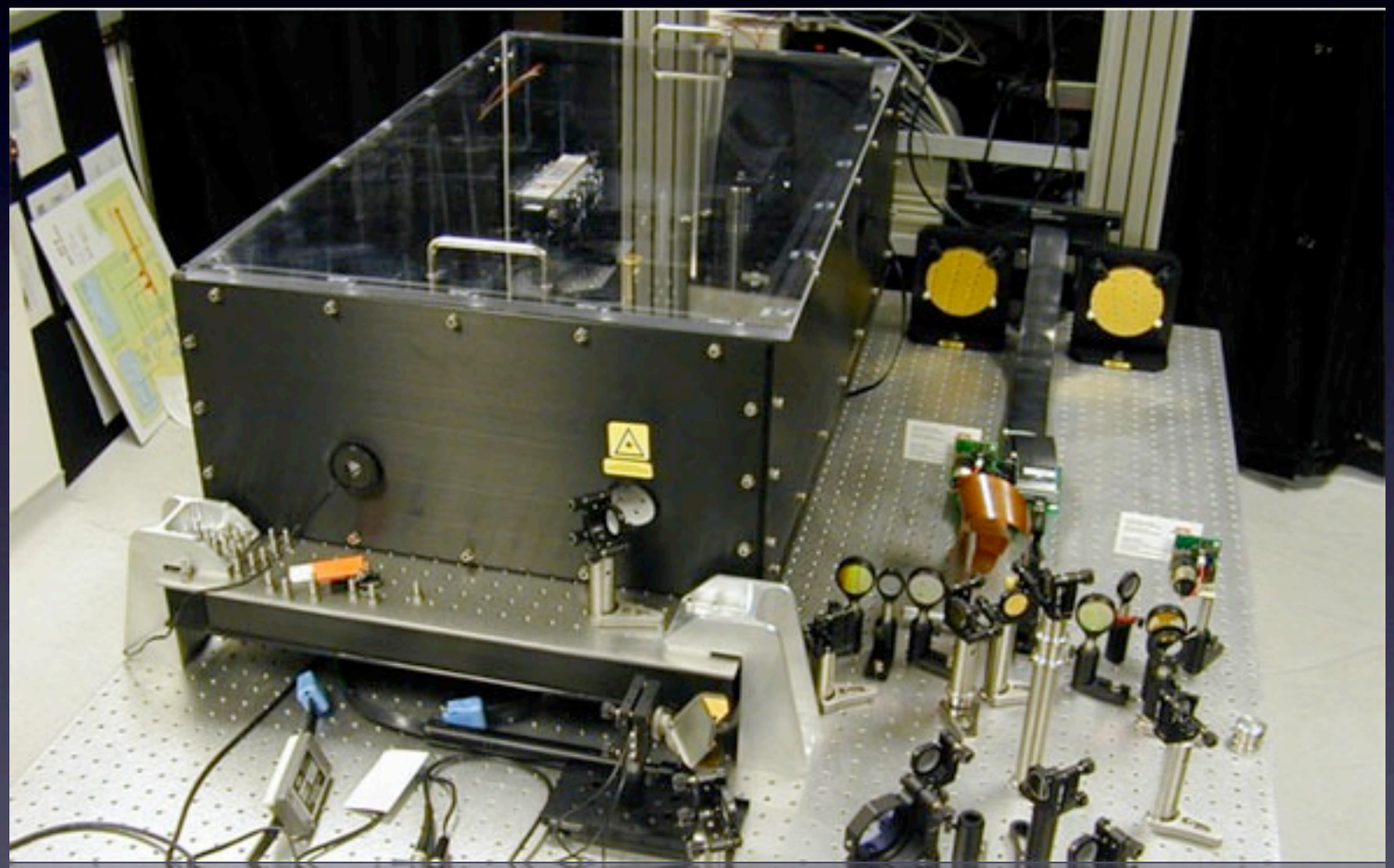


Introduction

Adaptative Nuller Testbed (JPL)



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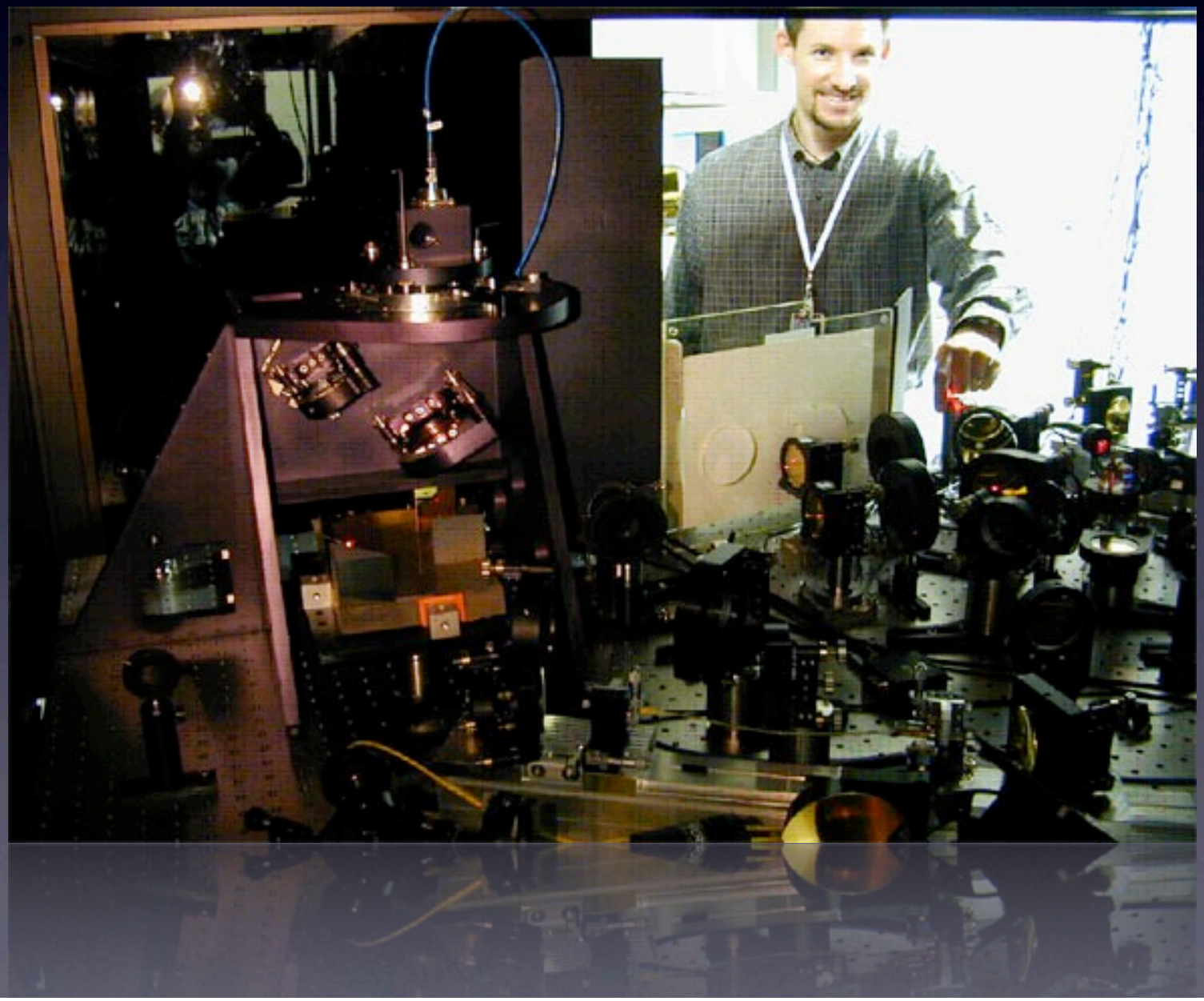
Achromatic Nulling Testbed (JPL)



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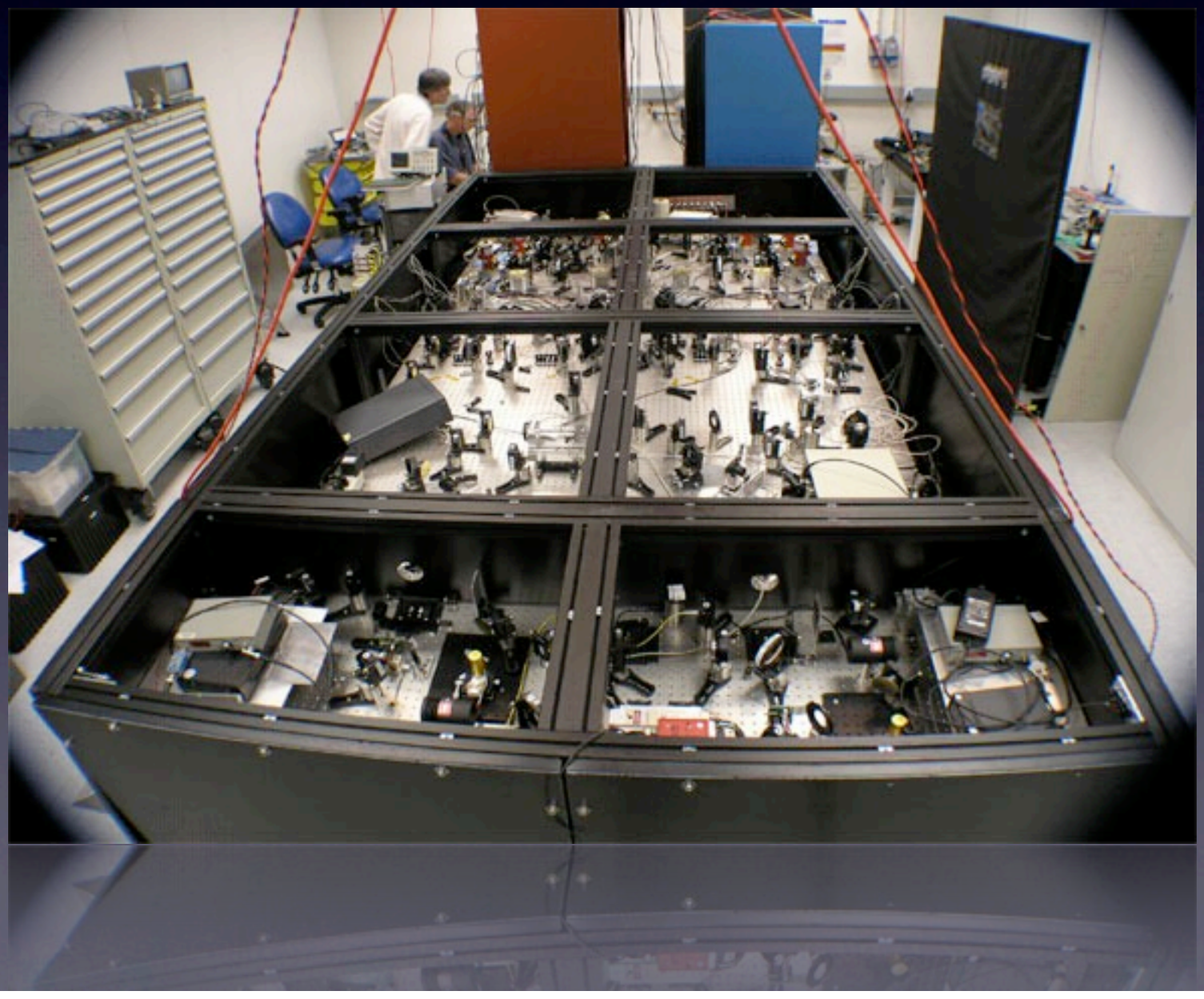
Planet Detection Testbed (JPL)



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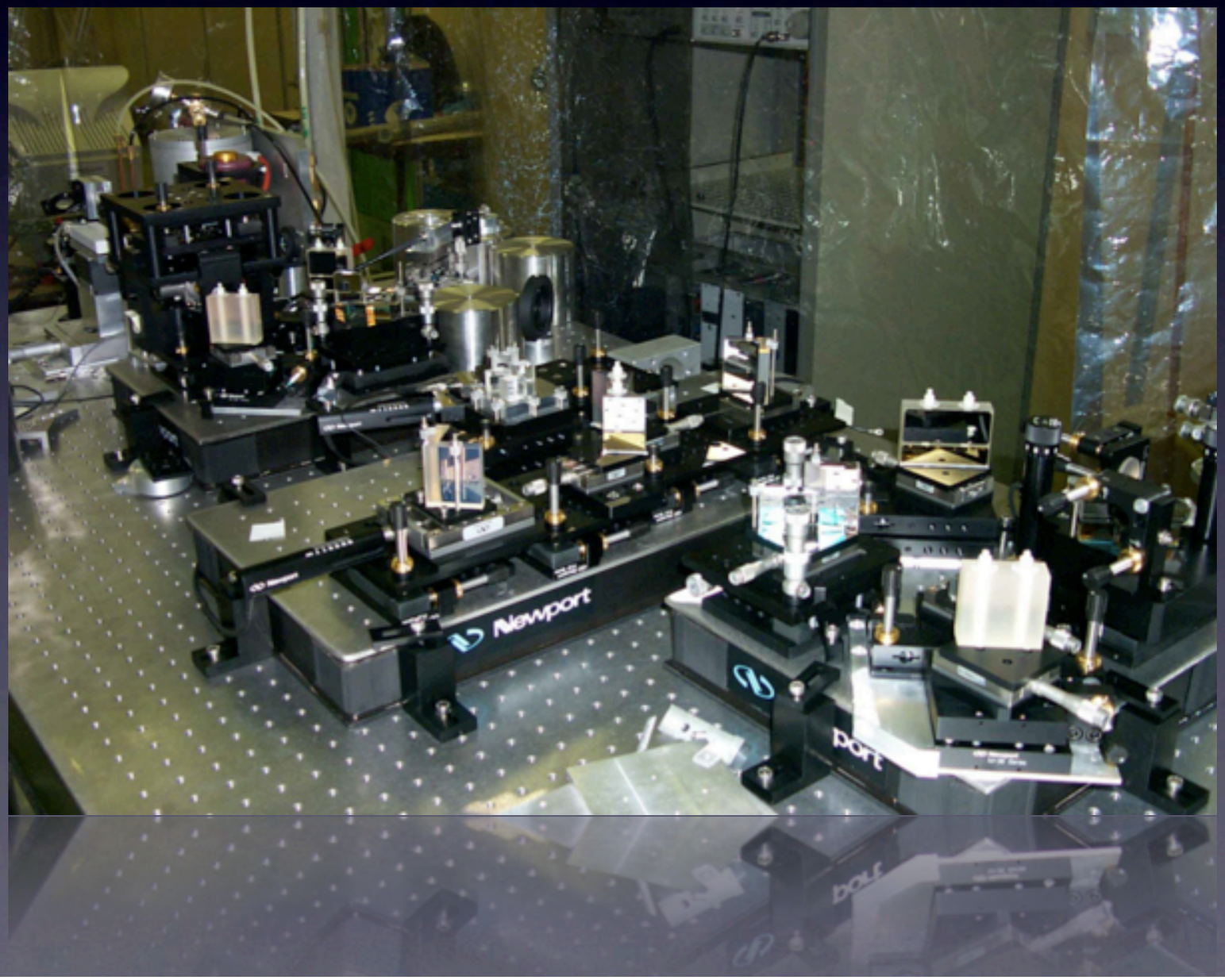
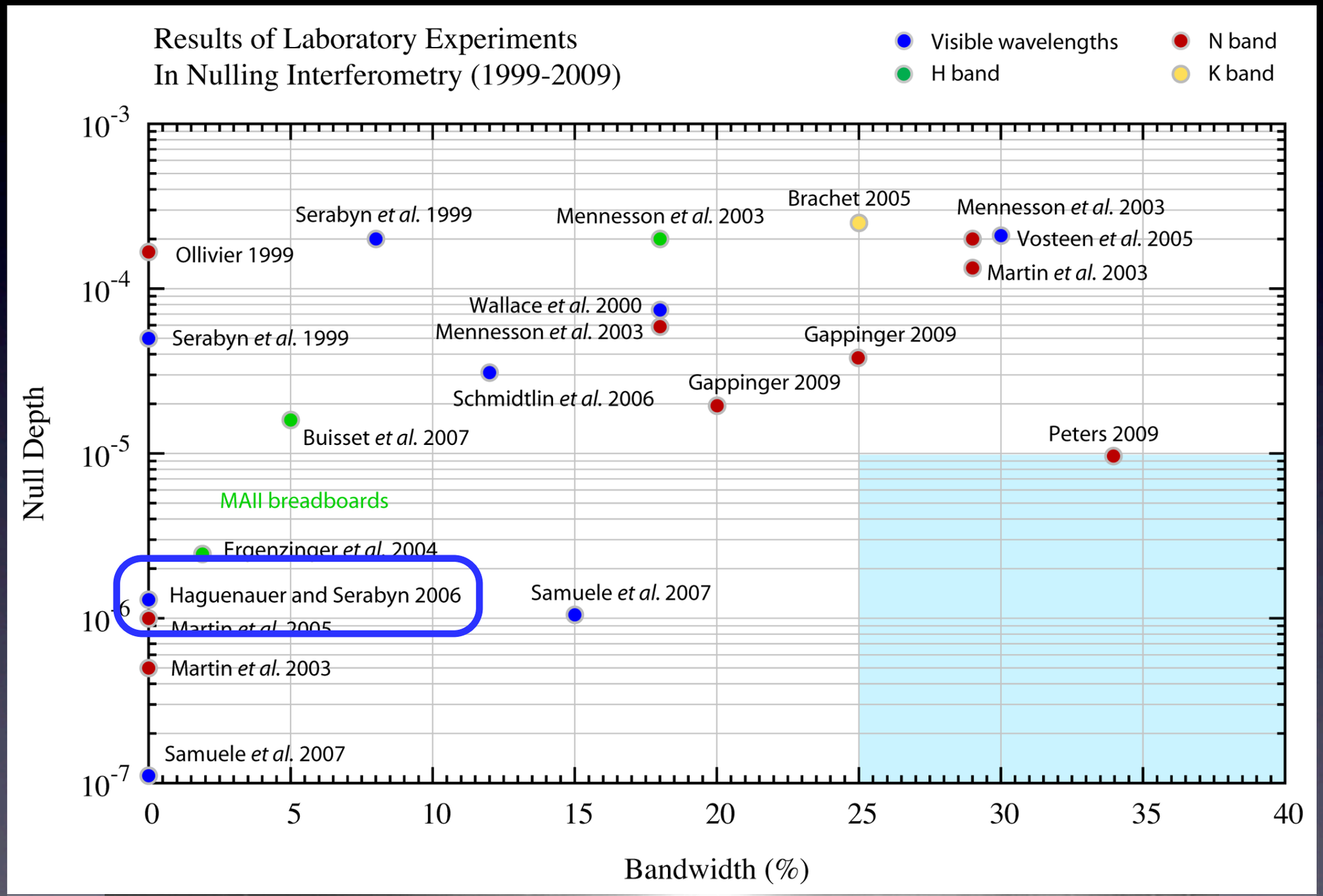
SYNAPSE (IAS)



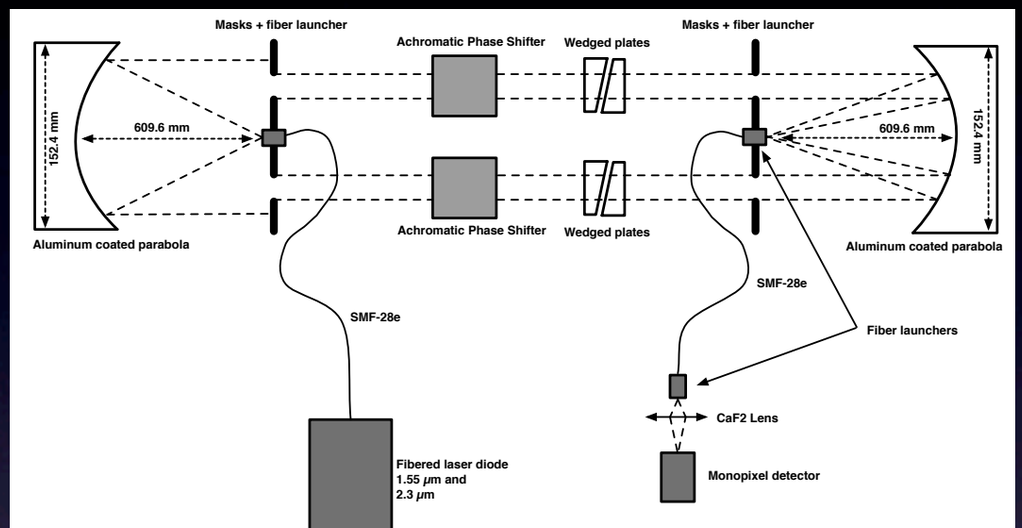
Introduction



Our Goals

Principles

- Simple fully symmetric scheme
- Reflective

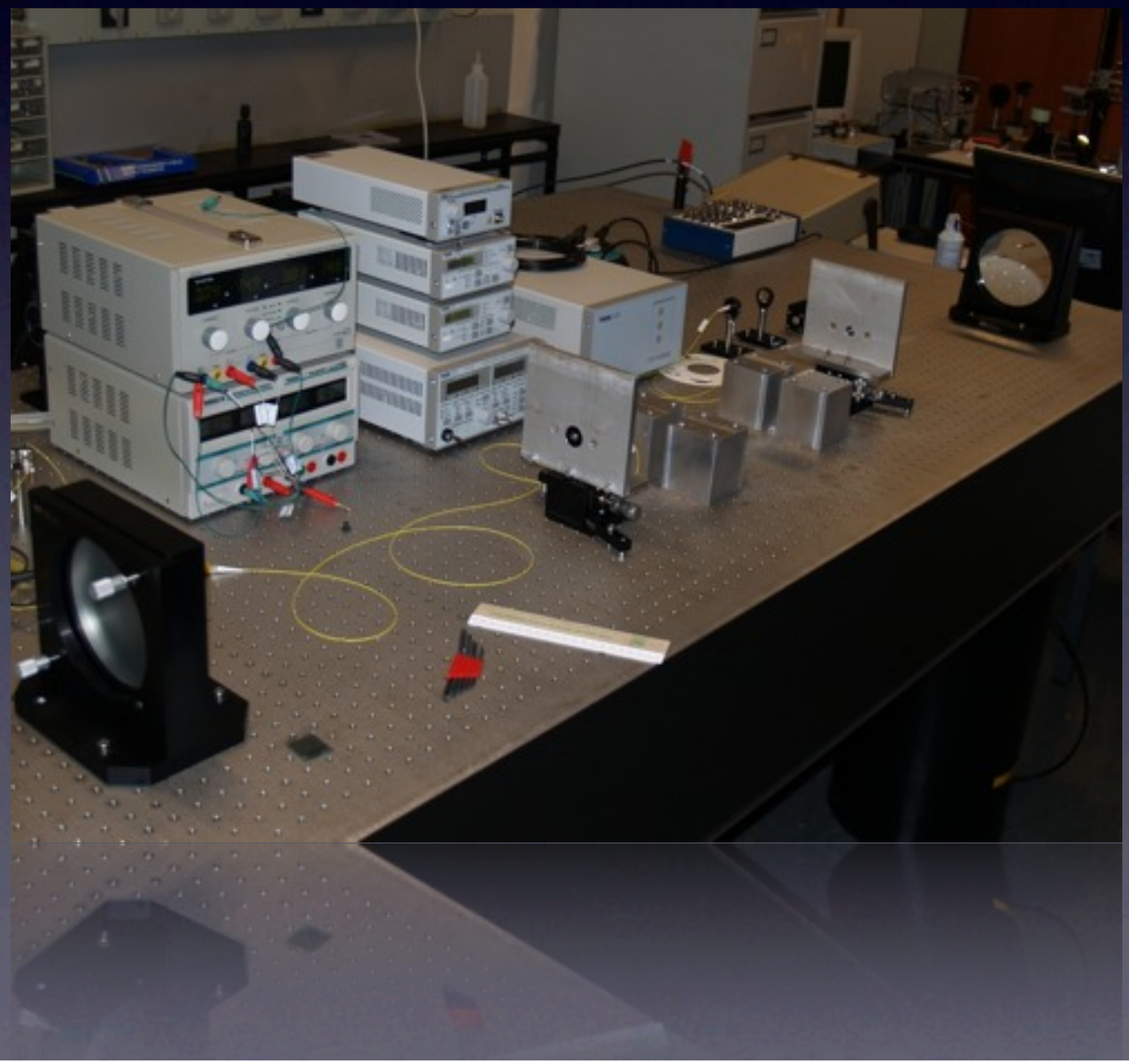


Objectives

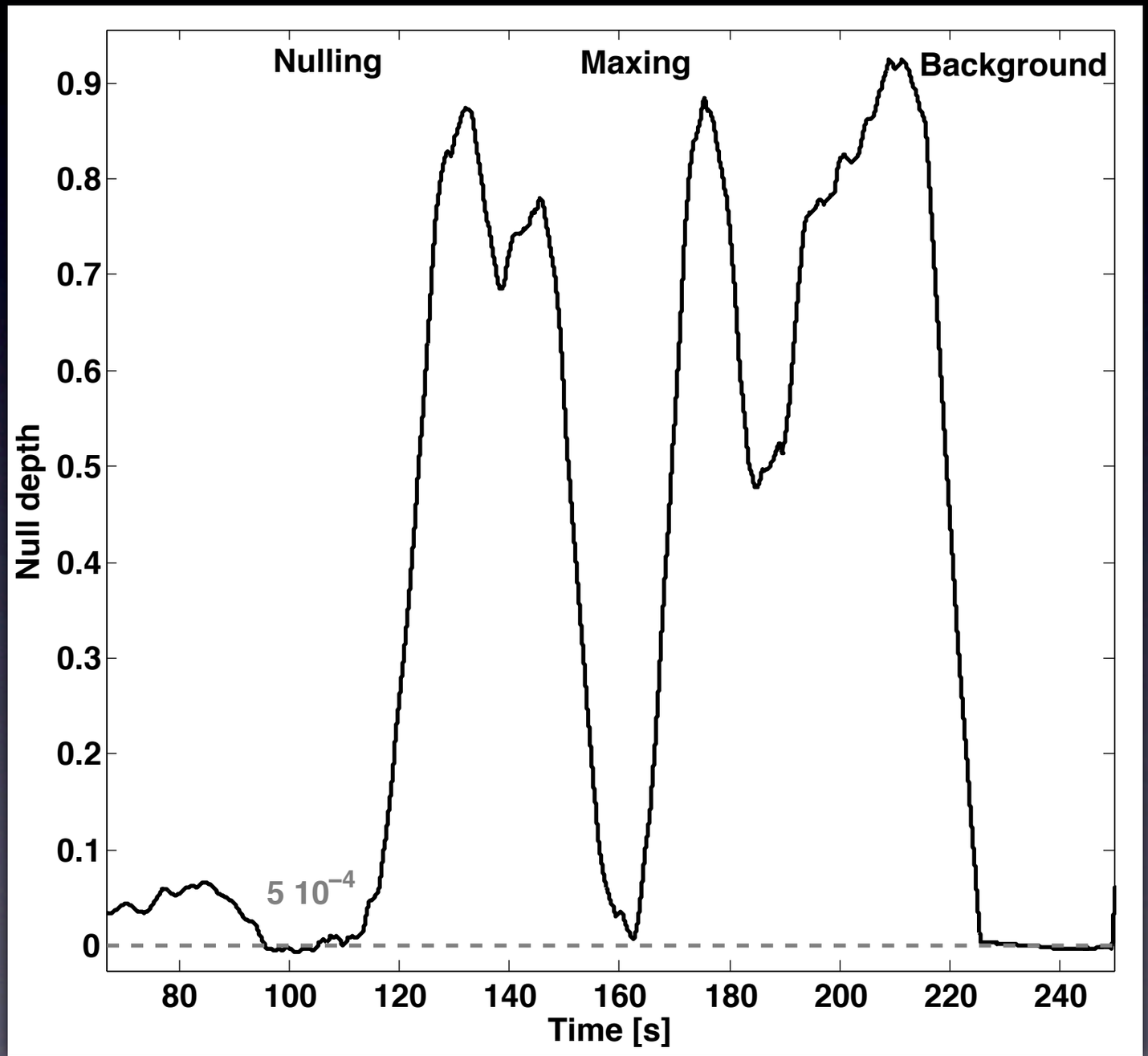
- Broadband nulling (H & K bands)
- Test Achromatic phase shifters
- Test new single-mode fibers

Status

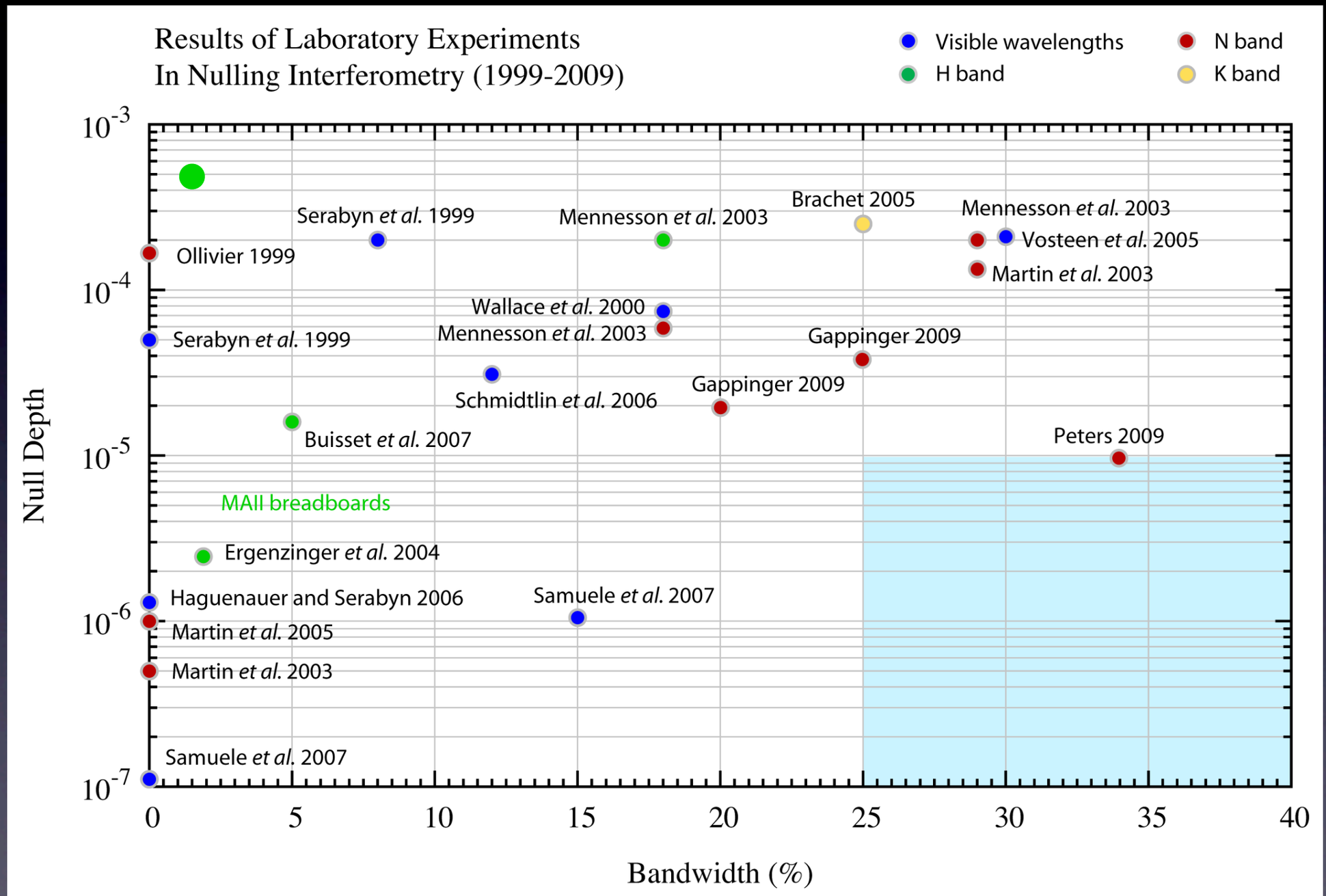
- Experiment running and properly aligned
- Monochromatic laser
- «Delay lines» working
- Need to mount APS



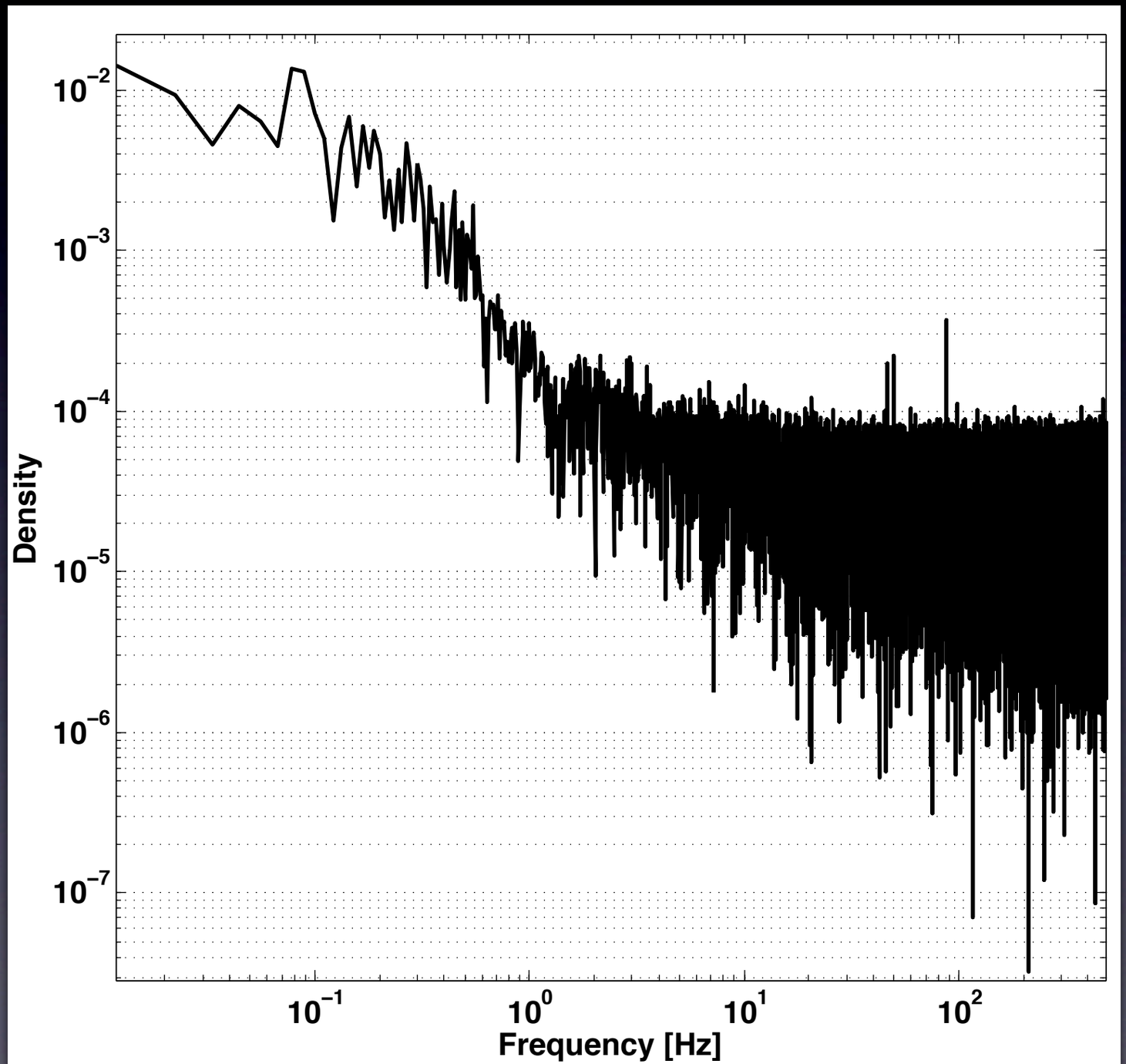
First results



First results



First results



Conclusions

- Development of an achromatic nulling testbed
- Instrument easy to use
- Instrument ready to use
- First results are promising

Thank you !!!