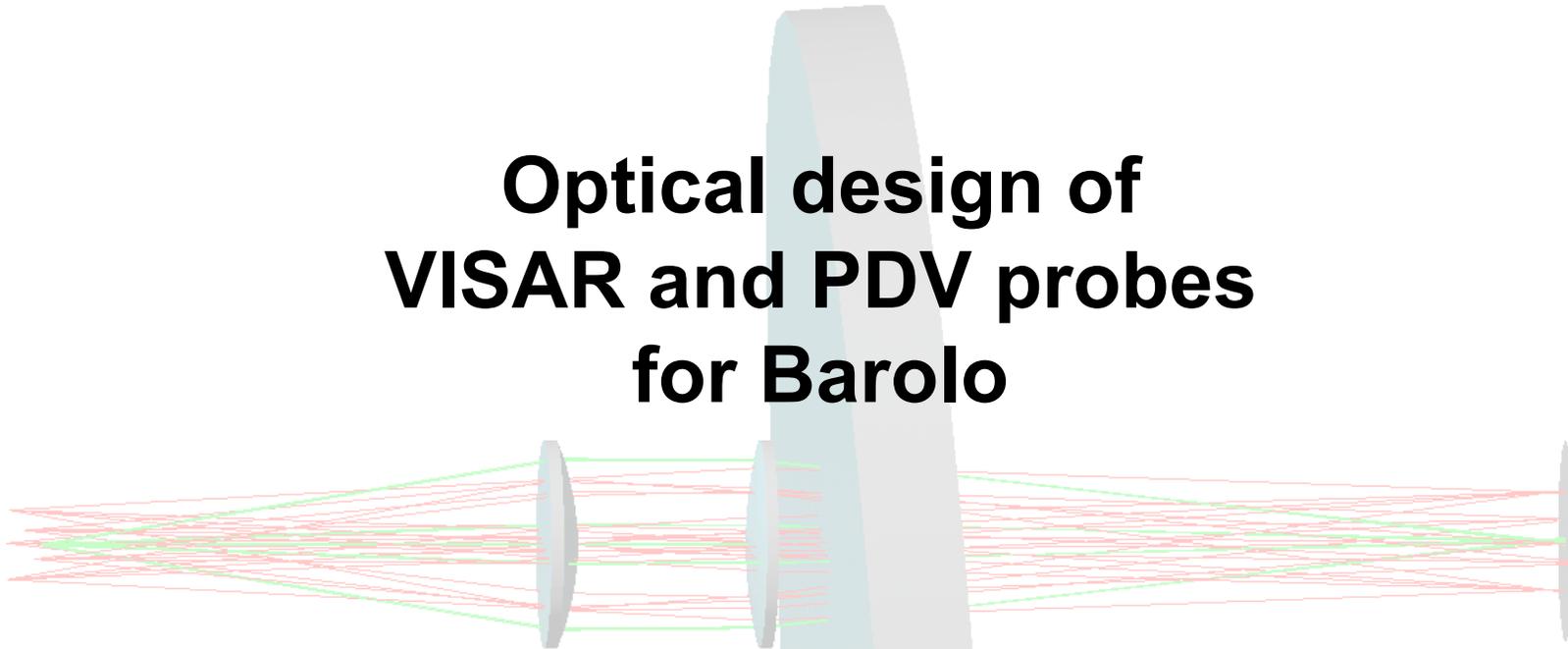


# Optical design of VISAR and PDV probes for Barolo



**Brent C. Frogget**

NSTec/Los Alamos Operations

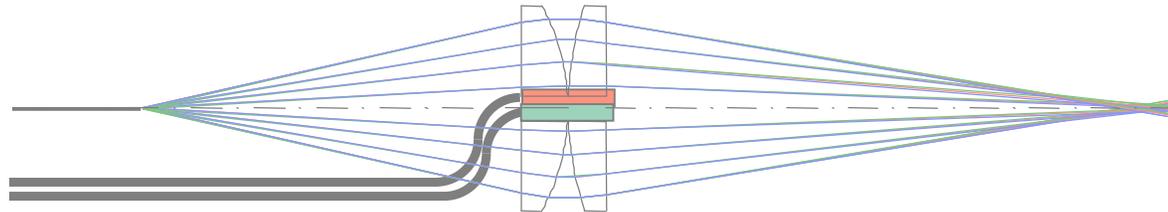
2<sup>nd</sup> Annual Heterodyne Workshop

**August 16-17, 2007**

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# Acknowledgements

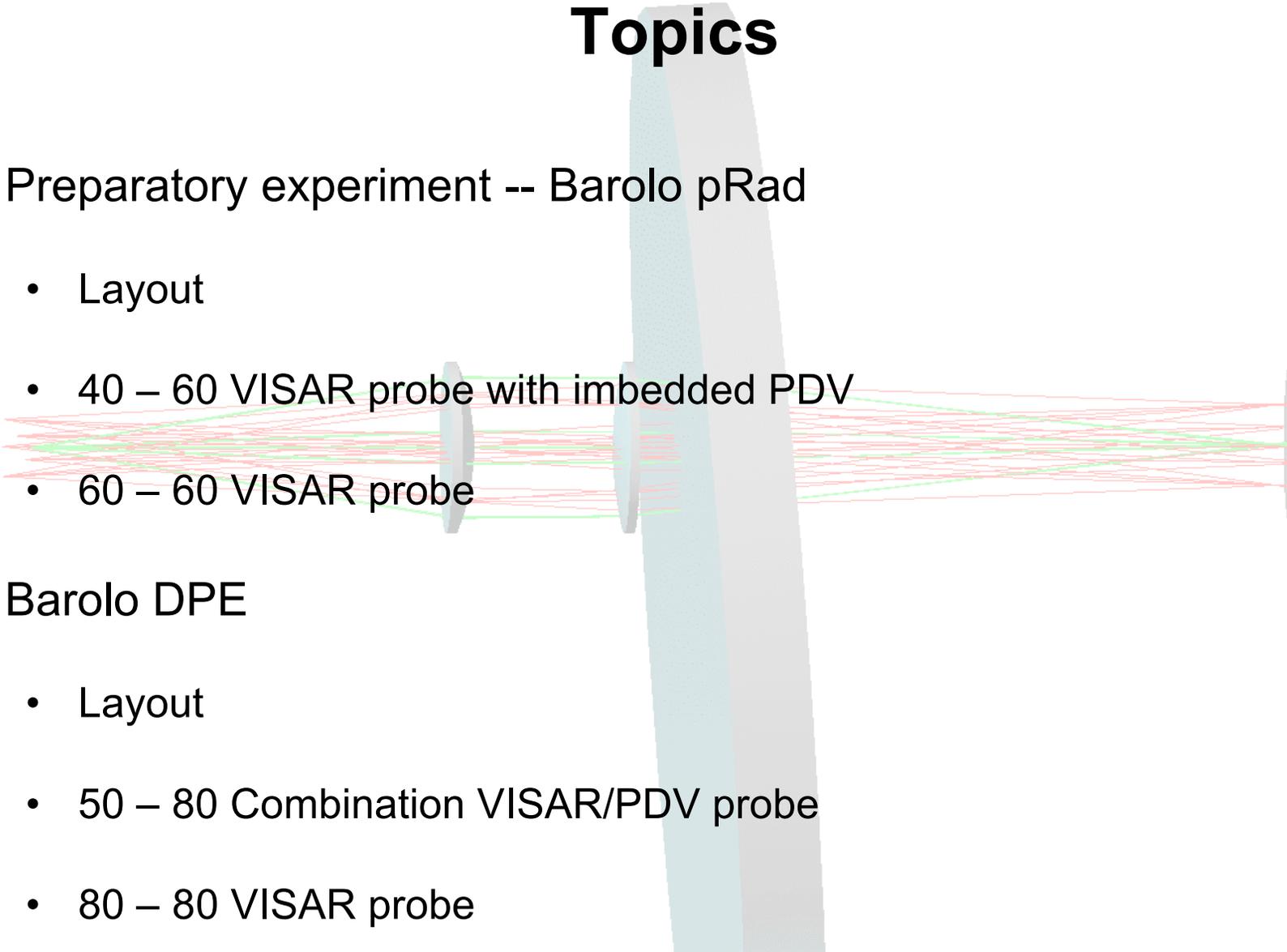
- NSTec/LAO
  - Brent Frogget
  - Doug Devore
  - Paul Flores
  - Vince Romero
- LANL
  - Matt Briggs
  - Mike Furlanetto
  - Dave Holtkamp
  - Mike Shinas



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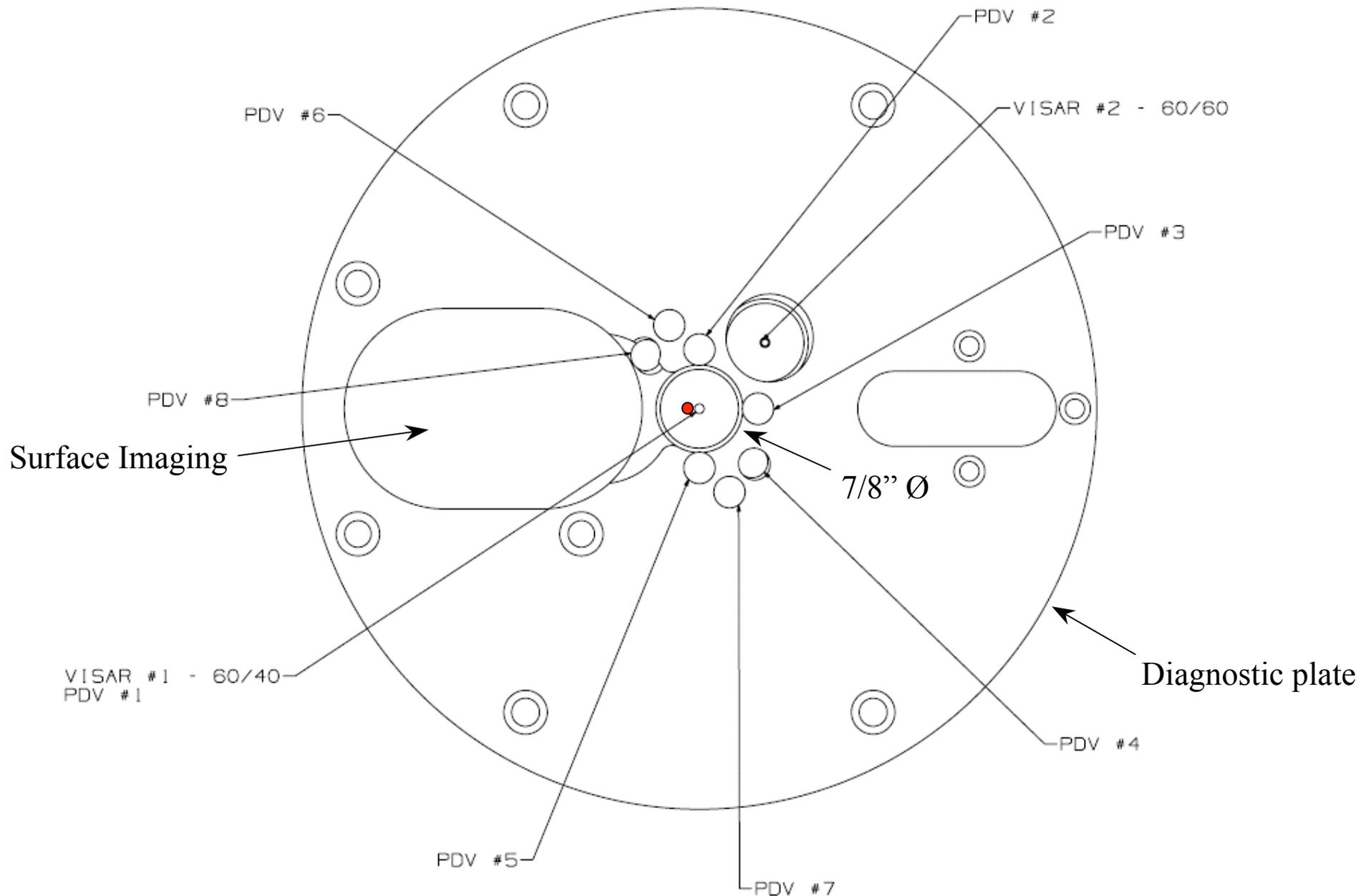
# Topics

- Preparatory experiment -- Barolo pRad
  - Layout
  - 40 – 60 VISAR probe with imbedded PDV
  - 60 – 60 VISAR probe
- Barolo DPE
  - Layout
  - 50 – 80 Combination VISAR/PDV probe
  - 80 – 80 VISAR probe

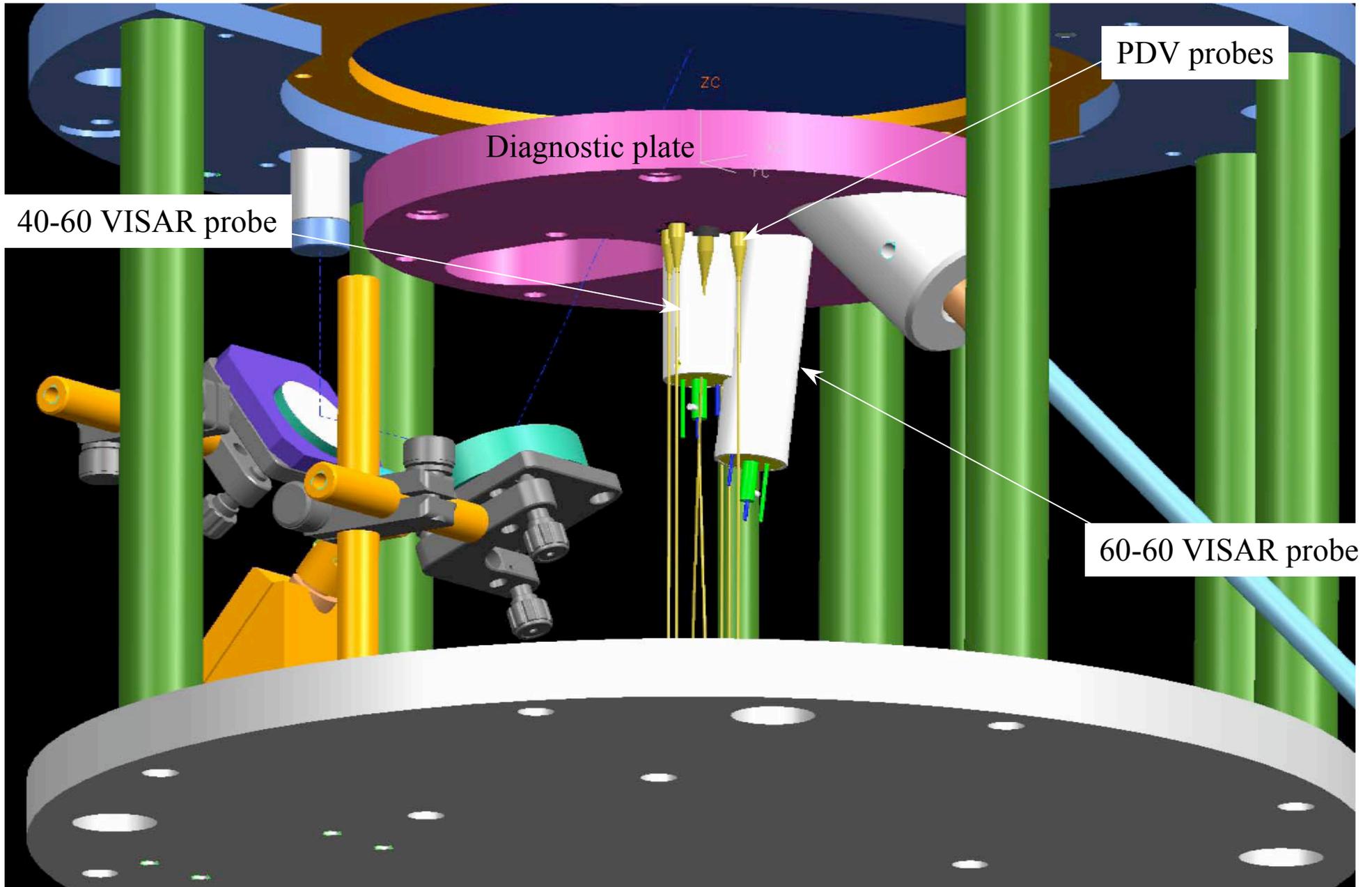


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# Barolo pRad layout



# Barolo pRad layout

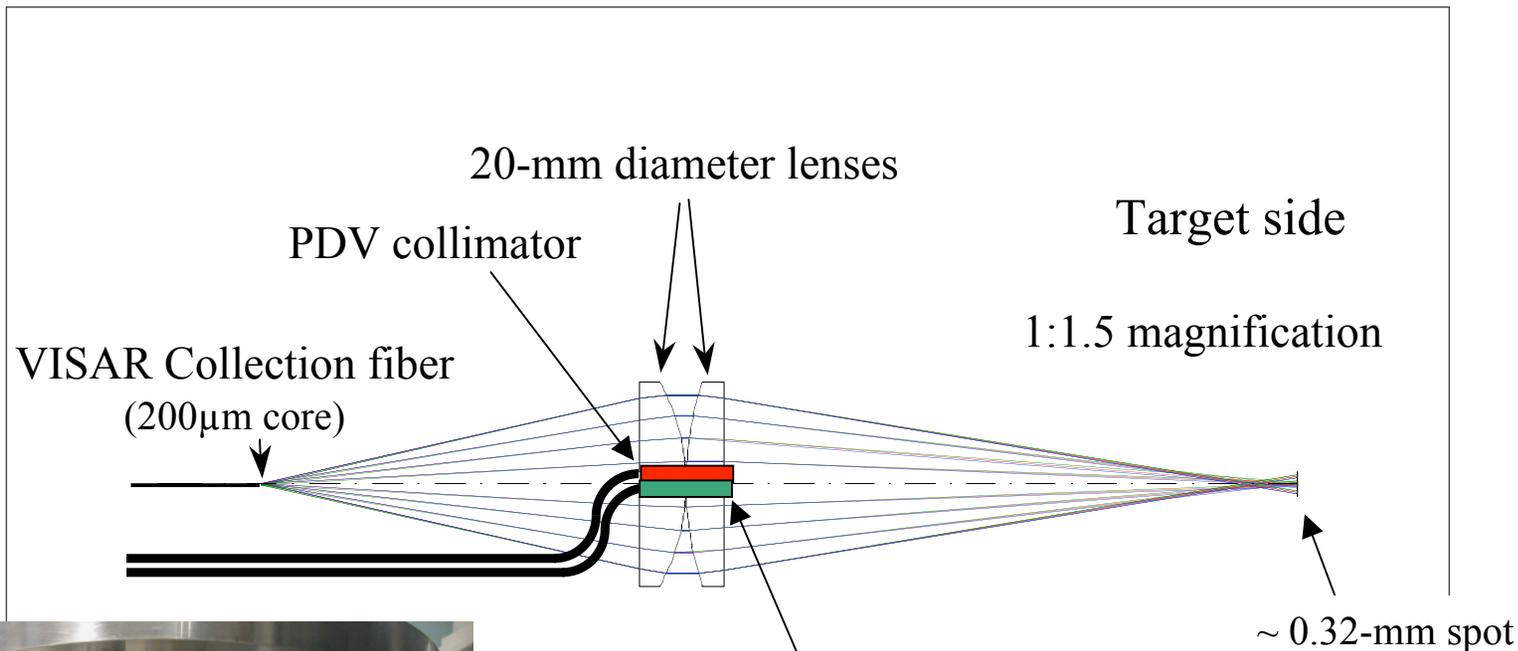


# Barolo pRad (probes looking up toward target)



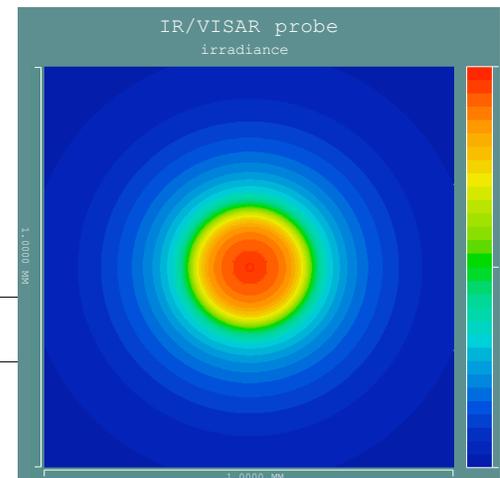
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# Barolo pRad 40-60 VISAR probe raytrace



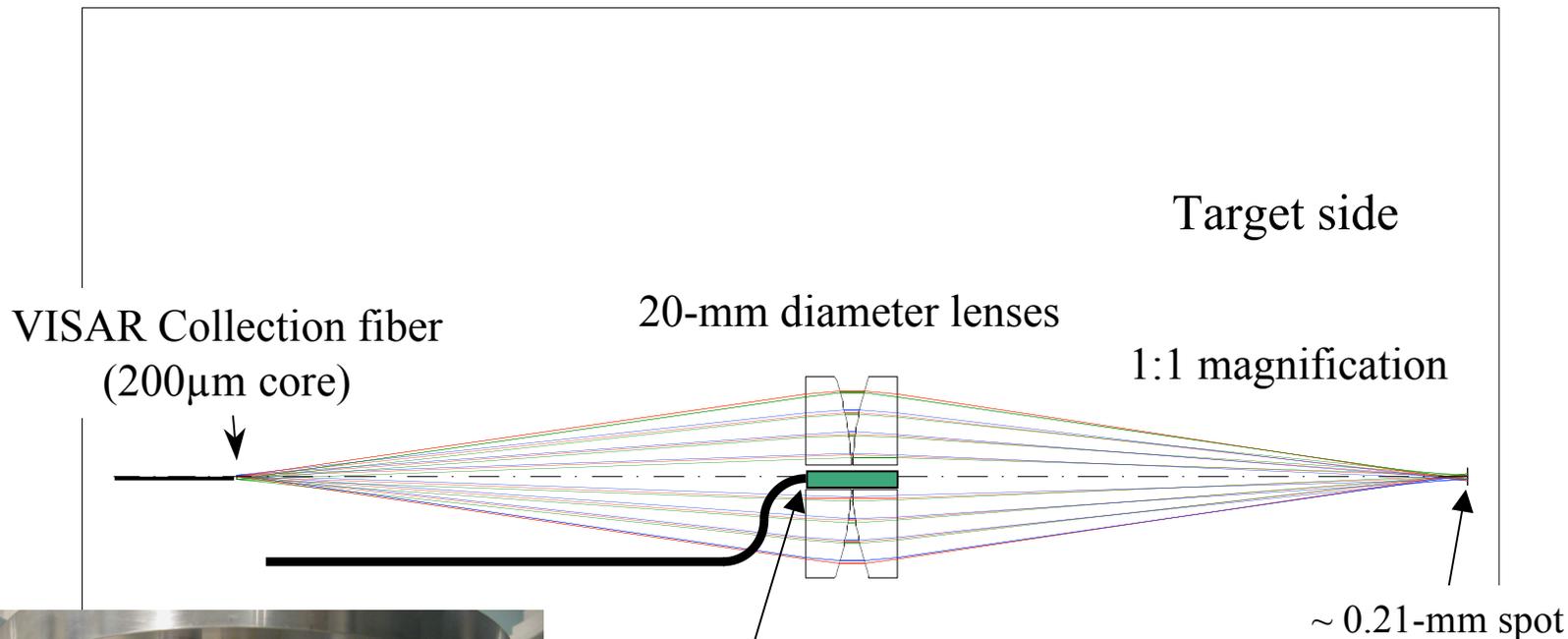
VISAR source collimator w/50µm core transmit fiber

40-60 VISAR probe



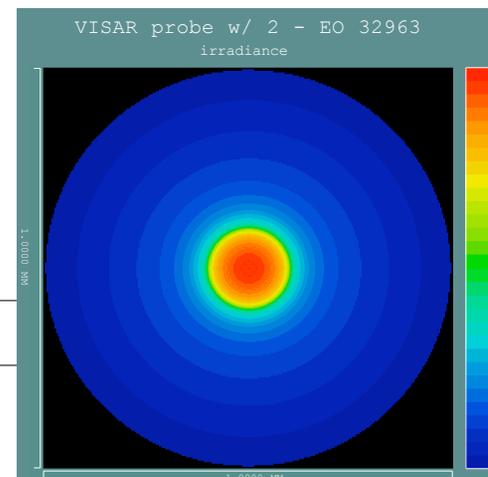
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# Barolo pRAD 60-60 VISAR probe raytrace

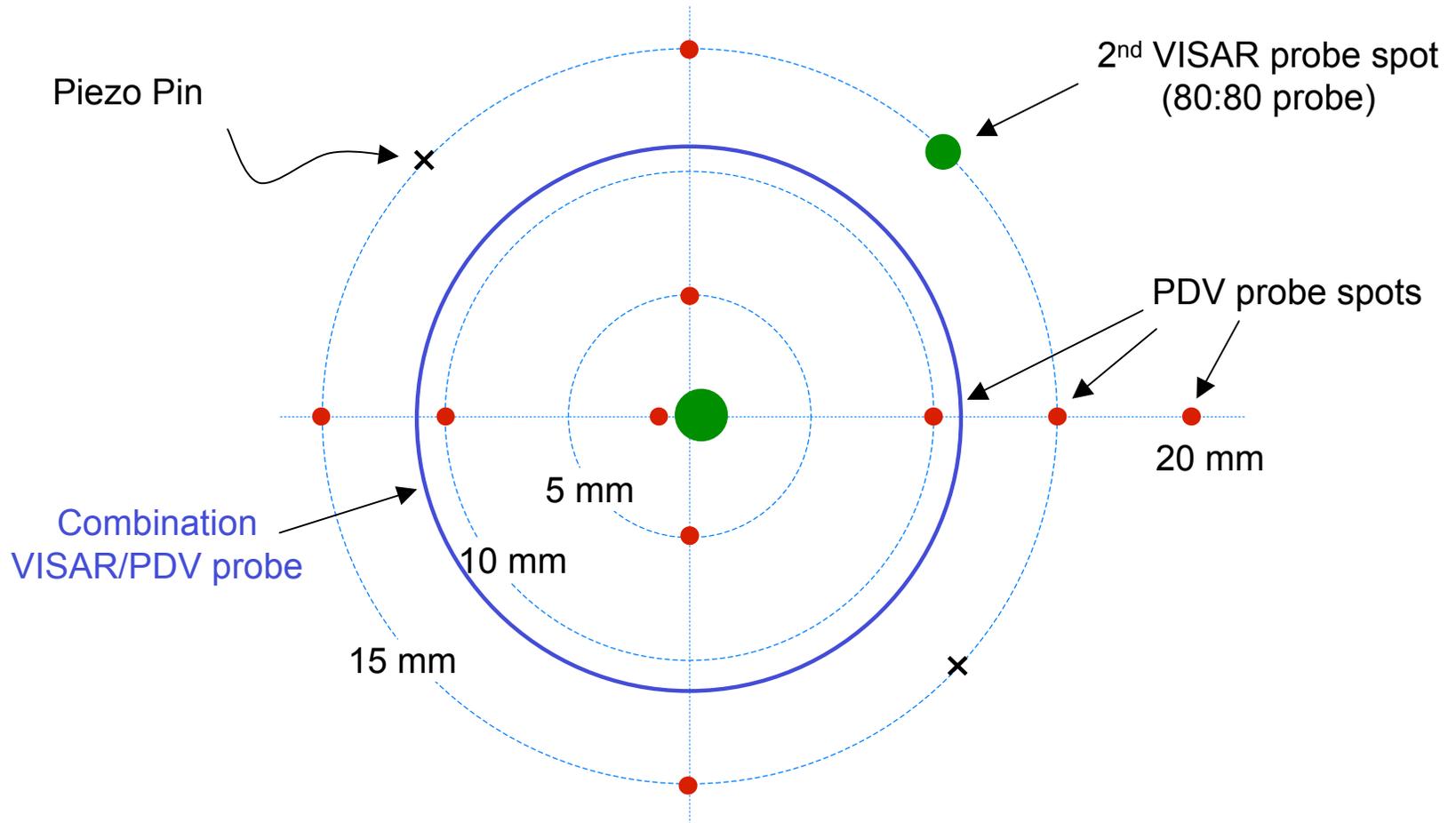


VISAR source collimator w/50µm core transmit fiber

60-60 VISAR probe



# Barolo DPE Layout of sample locations on target

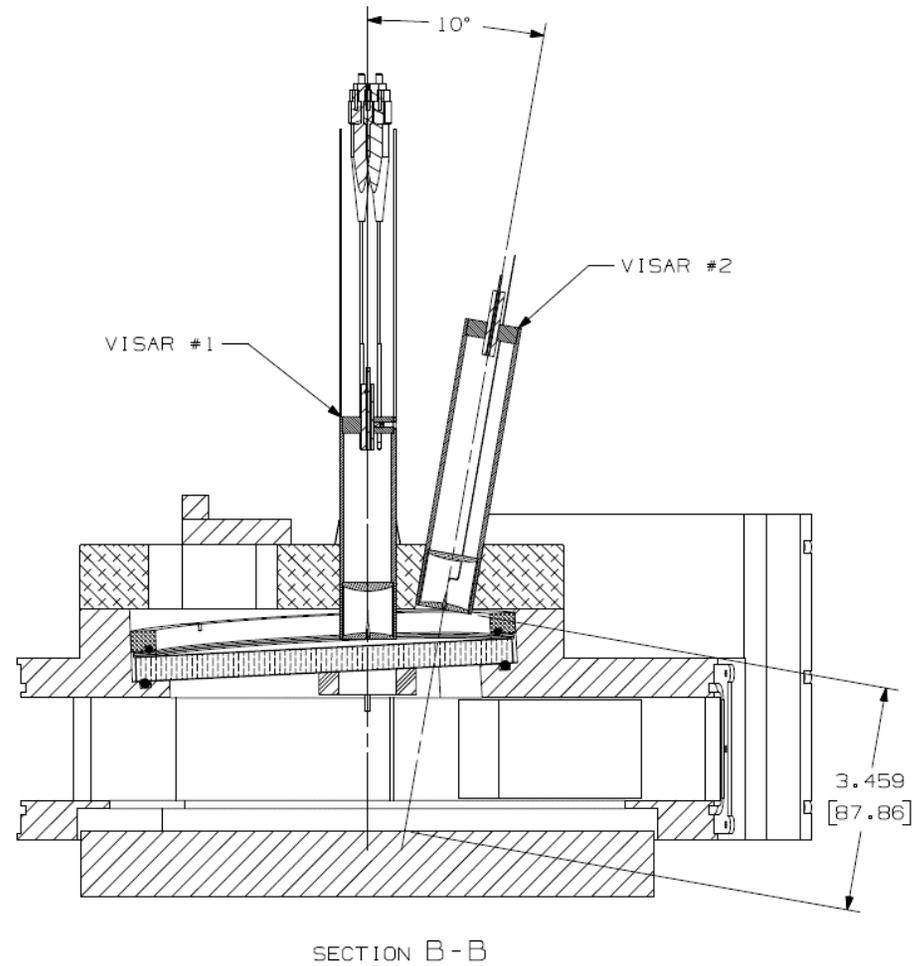
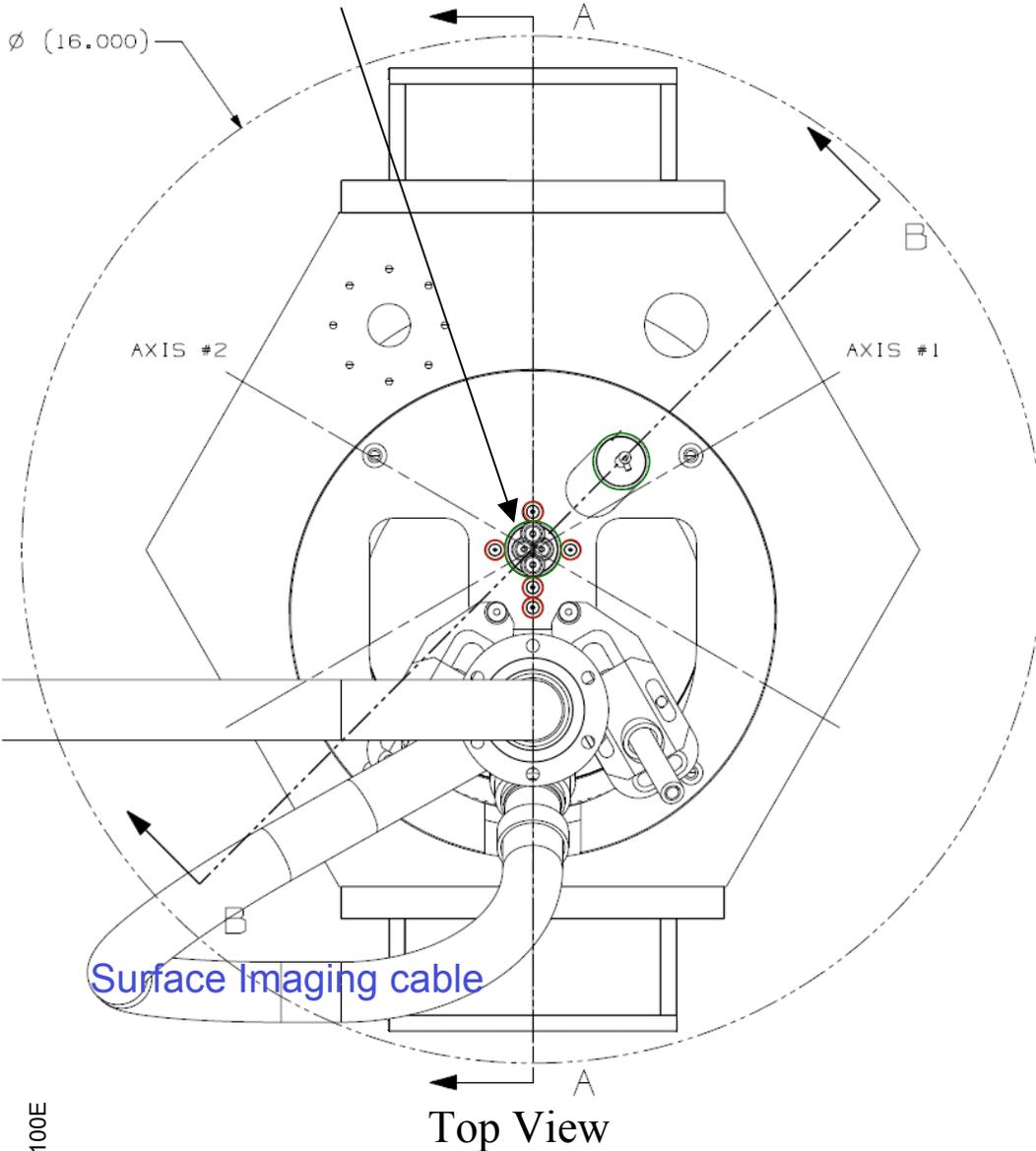


Spots not shown actual size

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# Barolo DPE

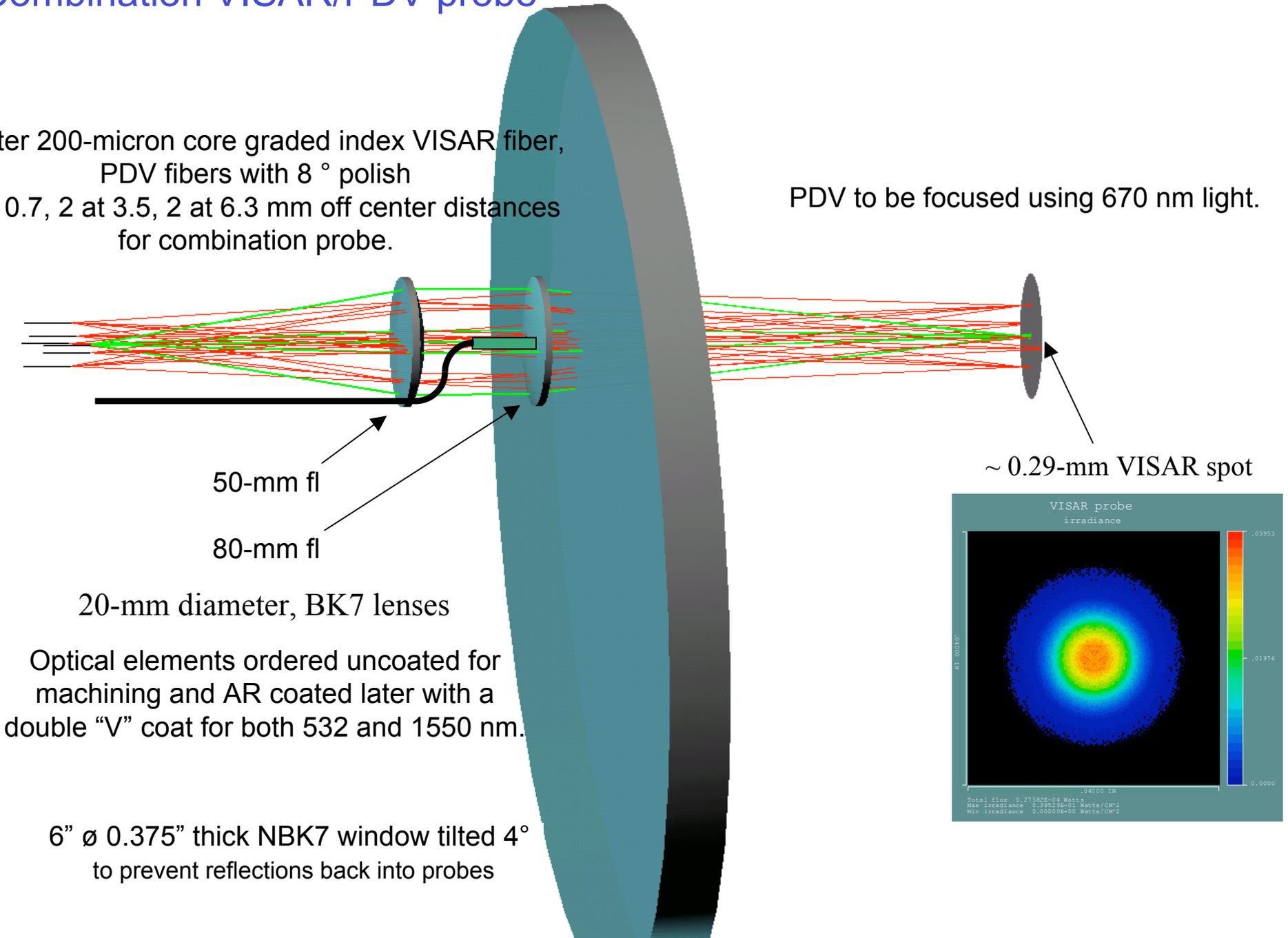
Combination  
VISAR/PDV probe



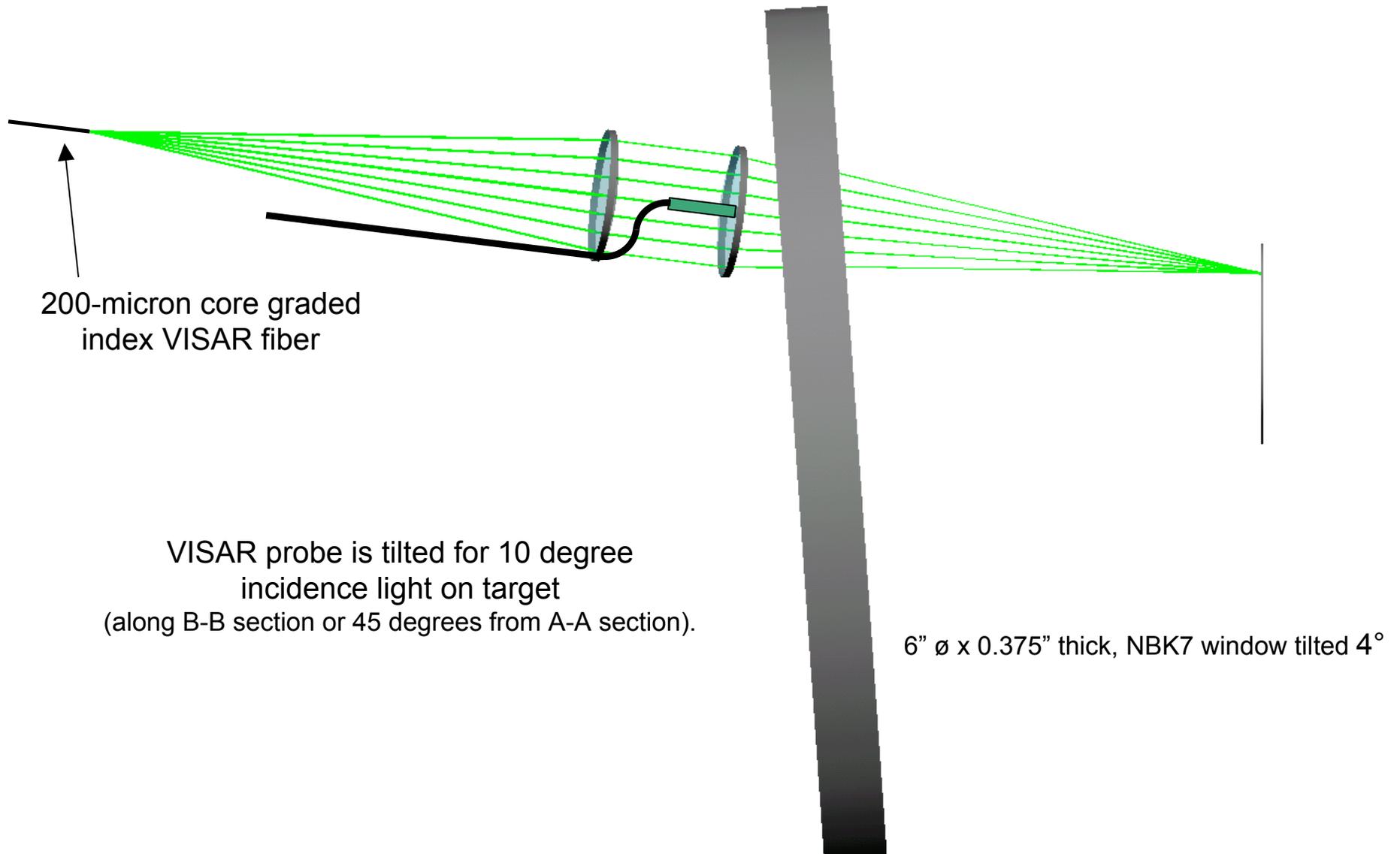
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## Combination VISAR/PDV probe

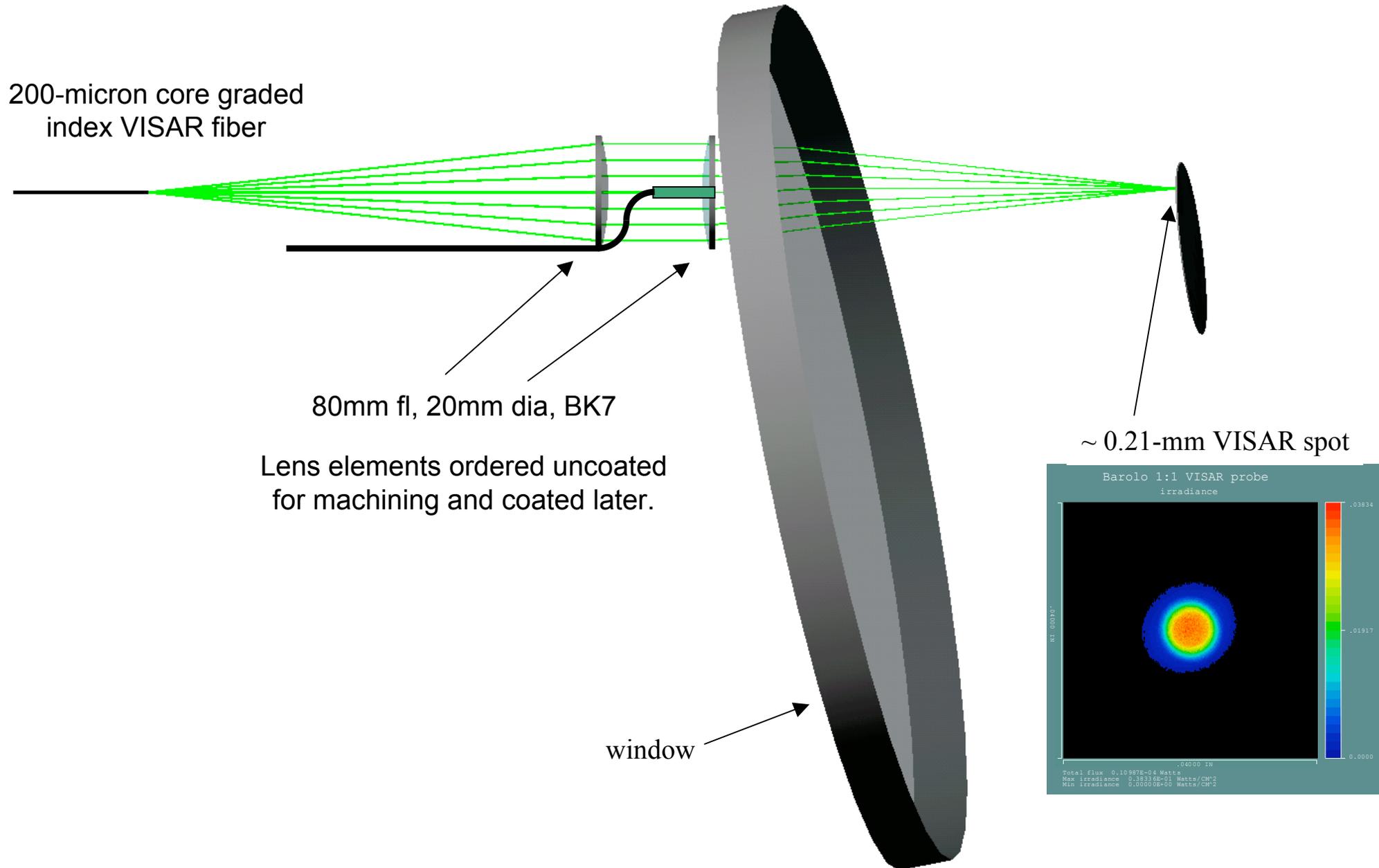
Center 200-micron core graded index VISAR fiber,  
PDV fibers with 8 ° polish  
1 at 0.7, 2 at 3.5, 2 at 6.3 mm off center distances  
for combination probe.



## 80:80 VISAR probe view along window

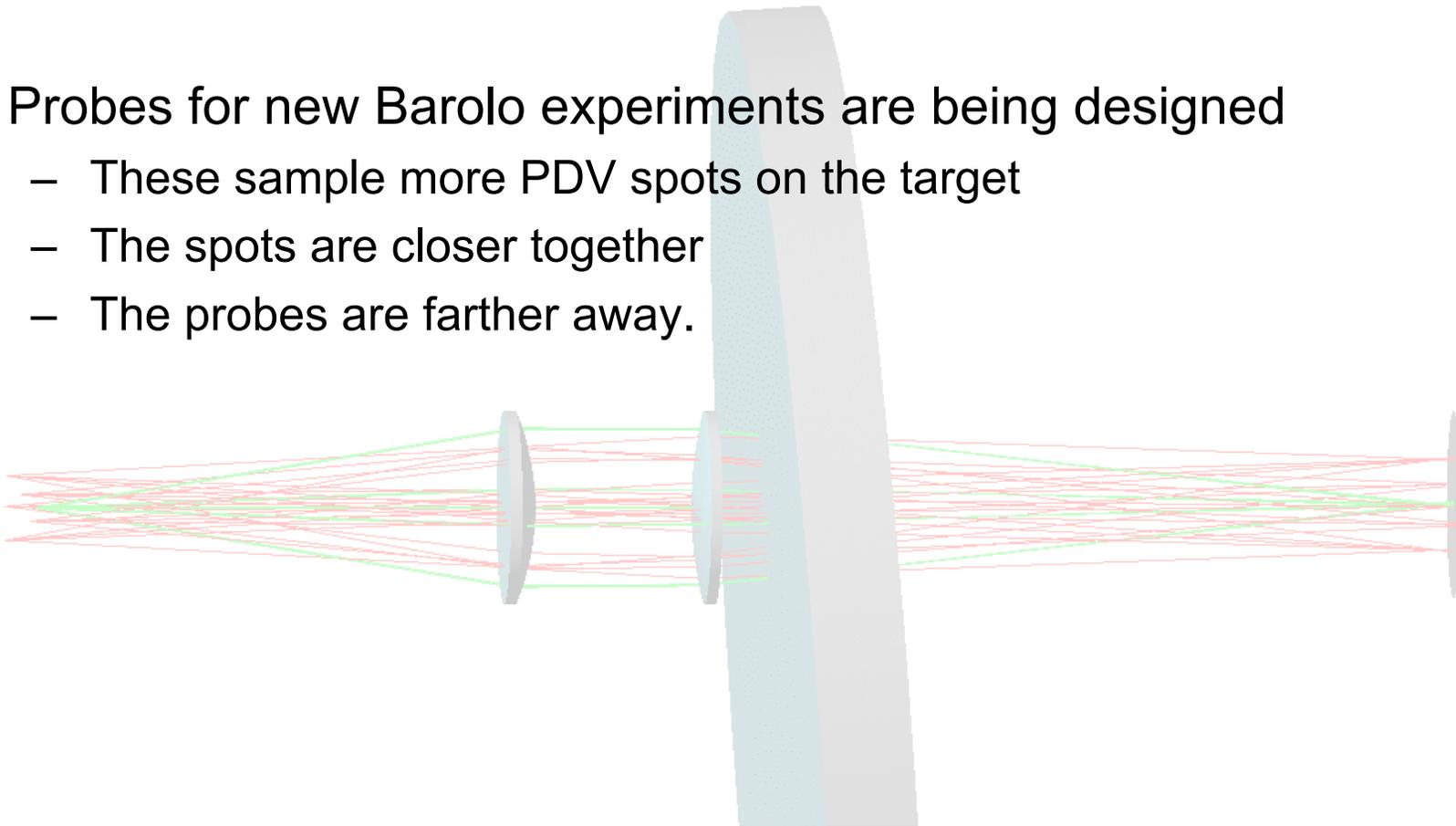


## 80:80 VISAR probe and spot size view along probe



# Summary

- Barolo pRad VISAR and PDV probes were successfully fielded in December 2006.
- Probes for new Barolo experiments are being designed
  - These sample more PDV spots on the target
  - The spots are closer together
  - The probes are farther away.



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