

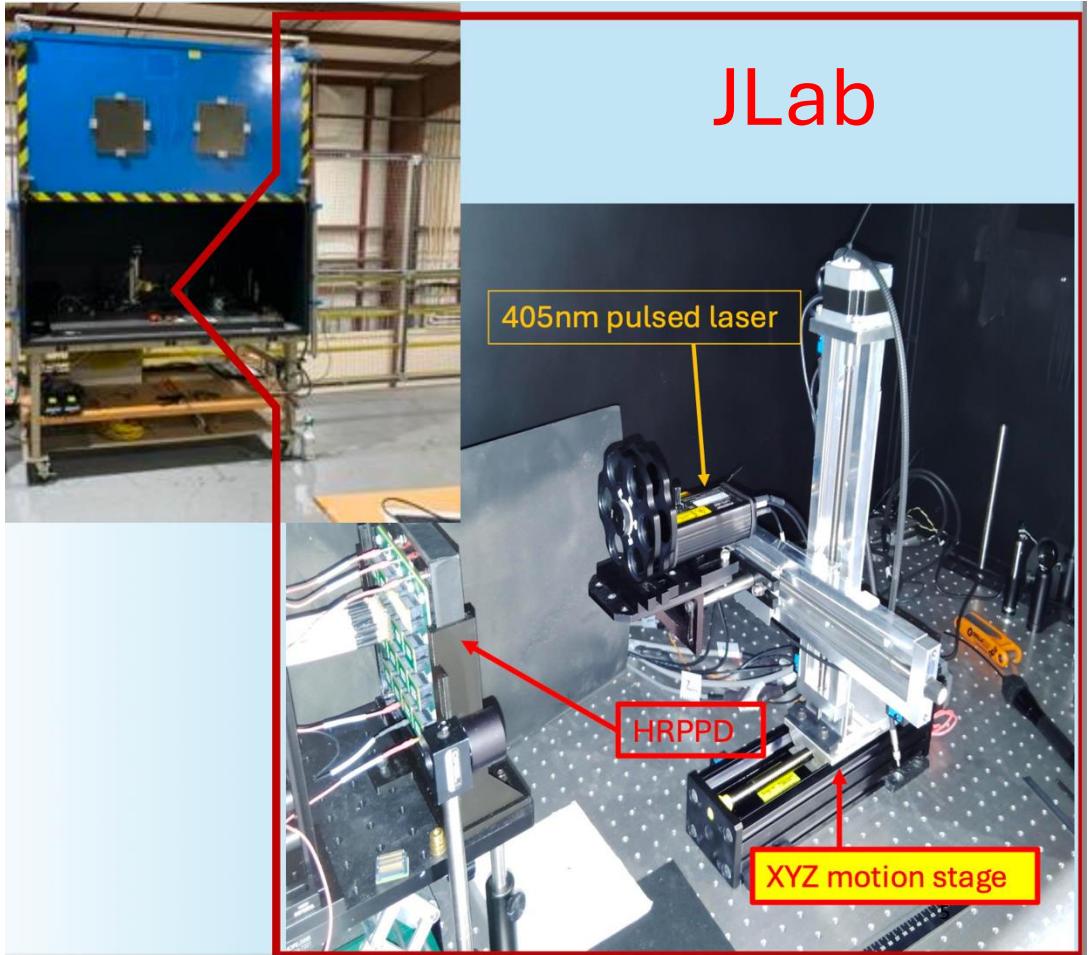
pfRICH Component QA

Brian Page
ePIC Collaboration Meeting
January 21, 2026

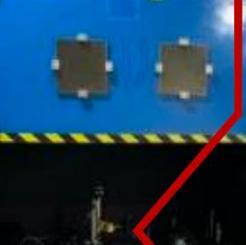
pfRICH QA Needs

- ❑ Three major pfRICH components require production QA
 - Photosensors (HRPPDs)
 - Mirrors
 - Aerogel Tiles
- ❑ “Engineering QA” like metrology will be performed during mechanical fabrication
- ❑ QA on electronics will also happen separately

HRPPD QA



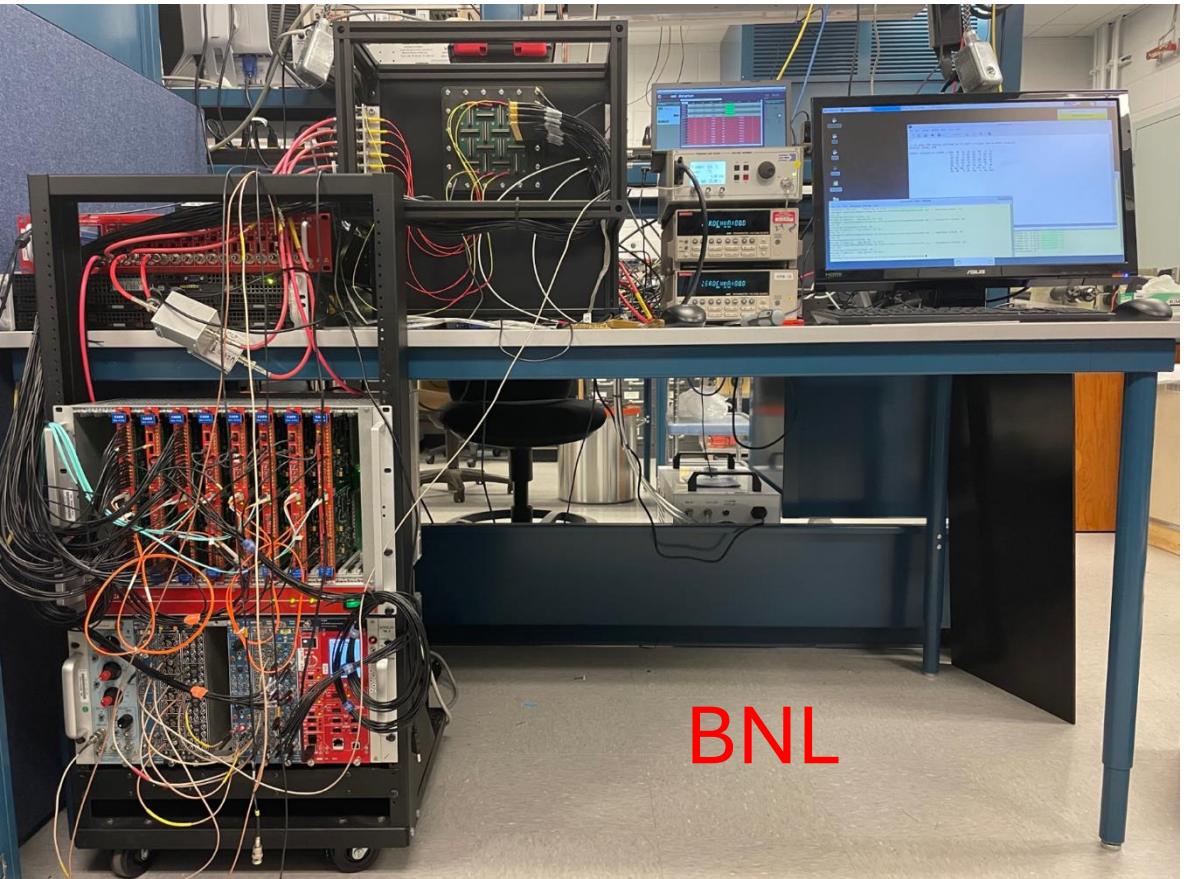
JLab



405nm pulsed laser

HRPPD

XYZ motion stage

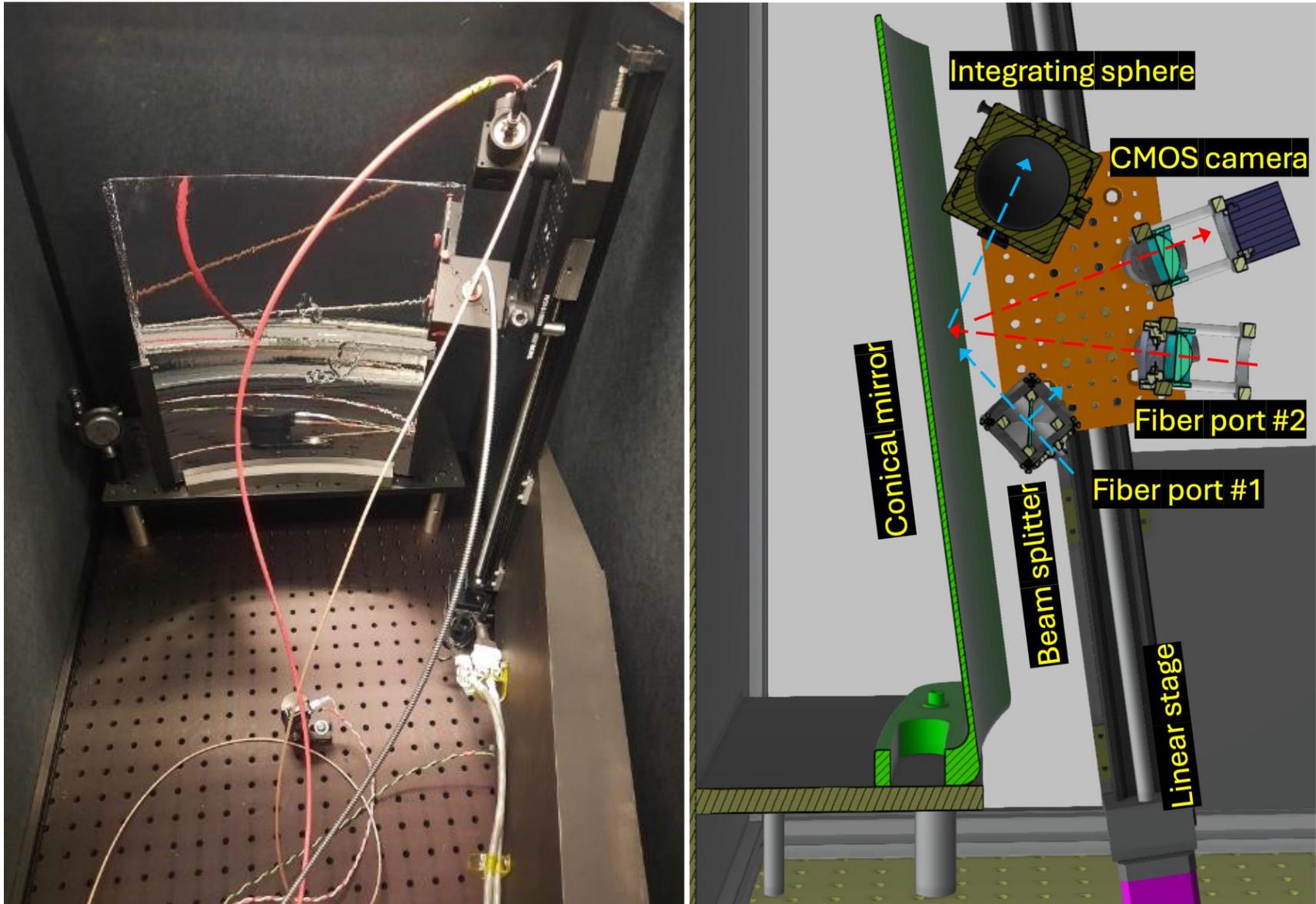


BNL

- ❑ Envision (at least) two test stands for QA of production HRPPDs
 - Basic mechanical / electrical “does it work” QA
 - Detailed checks of gain, timing, PED, DC, etc
- ❑ Equipment: pico/femto second lasers, digitizers, scopes, picoammeters, etc

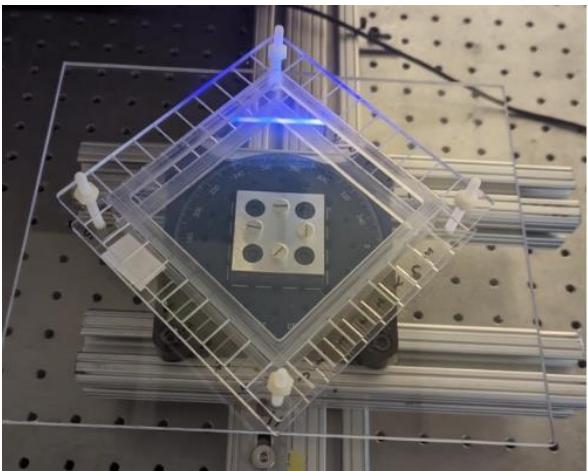
Mirror QA

- ❑ Large test stand designed to map reflectivity over full surface of mirror
- ❑ Long arm swings to follow cylindrical curvature and “head assembly” scans up and down
- ❑ Looking at microlens array to quantify surface quality



Aerogel QA

- ❑ Aerogel QA infrastructure at Temple University (Matt Posik)
- ❑ Transmittance QA using LEDs and and index of refraction check using Fraunhofer “prism” method
- ❑ Alternatives to prism method under investigation



Fraunhofer Method

