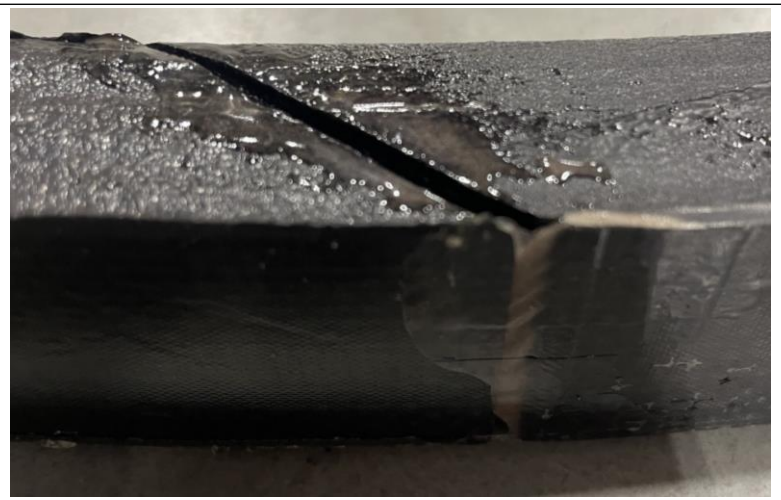
pfRICH Sensor Plate & End Rings

Simon Snydersmith, Sushrut Karmarkar, Kevin Chang, Andreas Jung

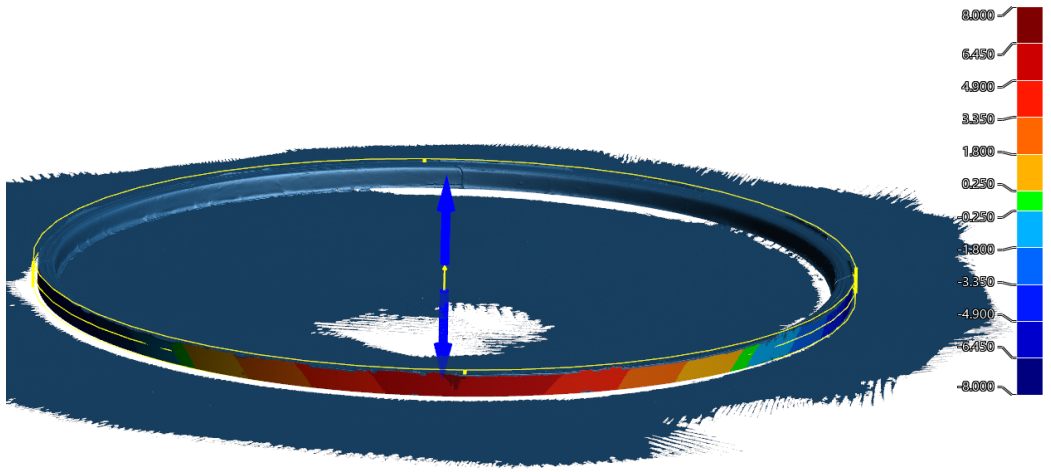
16 September 2024

Old End Ring Bonding Procedure

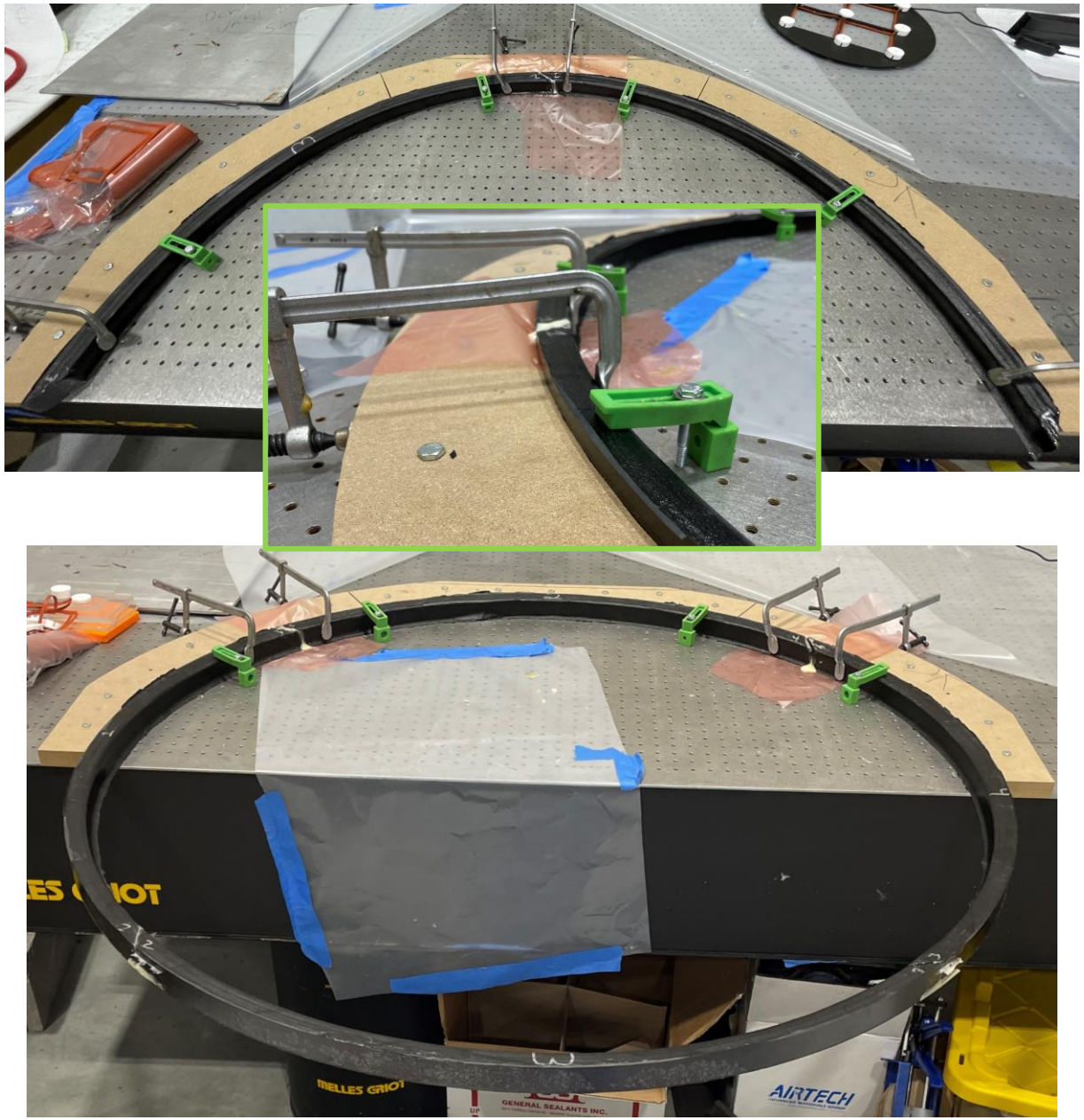
Fully-assembled bonding jig ---- TEST 1



- Bond Lines were crooked and uneven
- Cut bonds and bonded again with new process

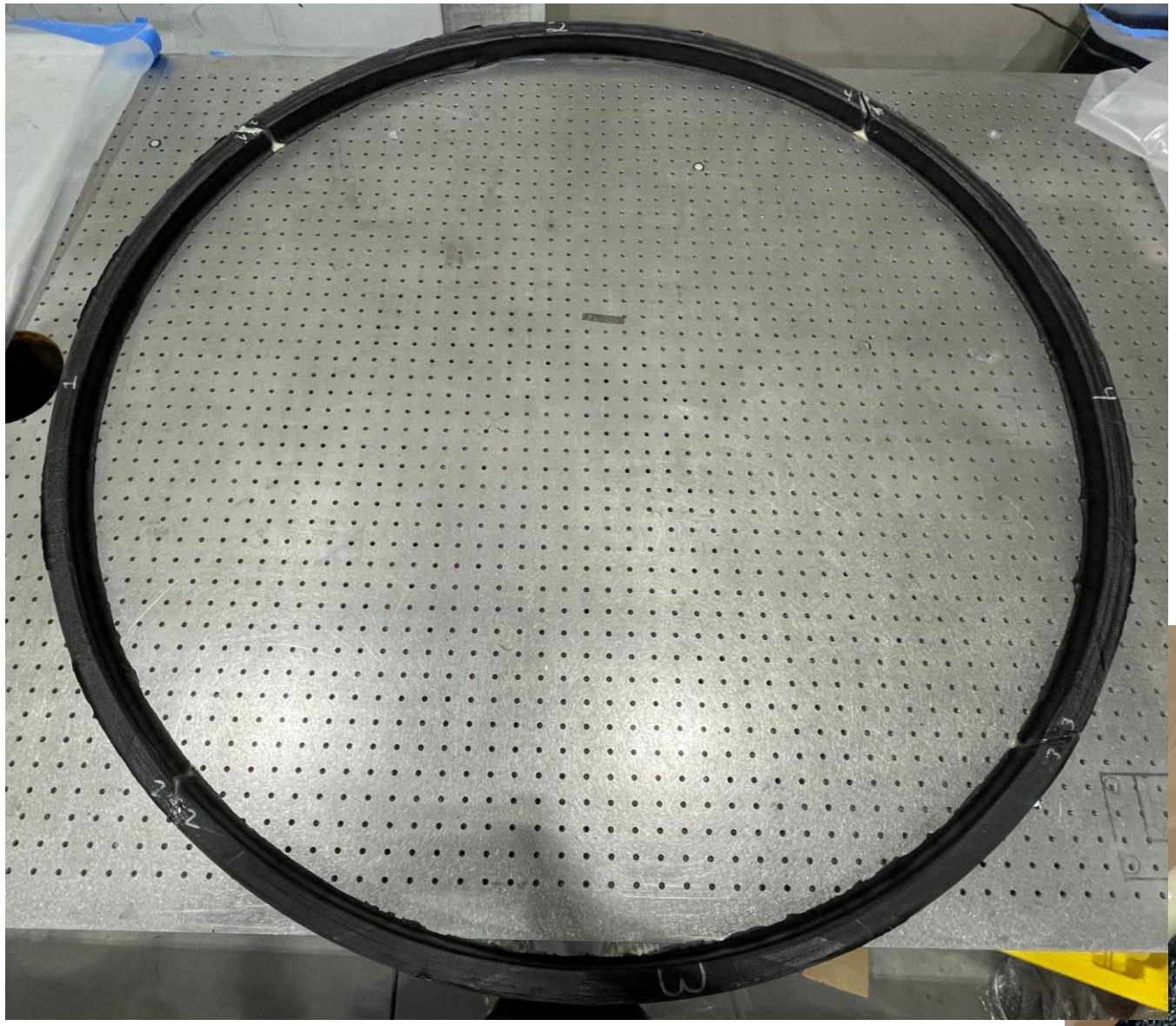


Updated End Ring Bonding Procedure



- New bonding jig fully constrains the outer radius around the bond
- Optical table ensures flatness of ring and allows for easy fixturing
- Used fumed silica as filler instead of micro balloons for higher strength and less sag
- Bonded in 3 steps to allow for more control over individual bonds

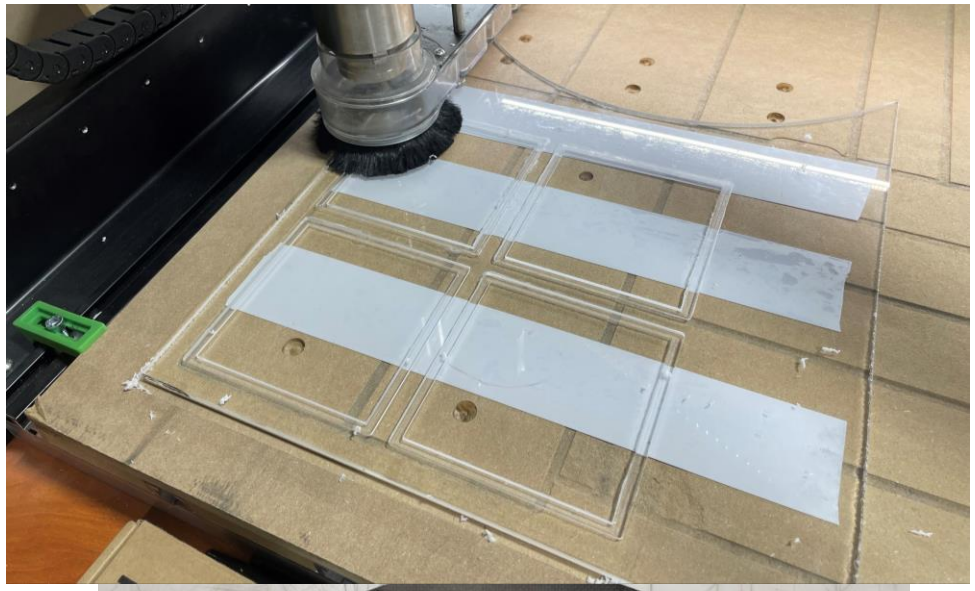
Results

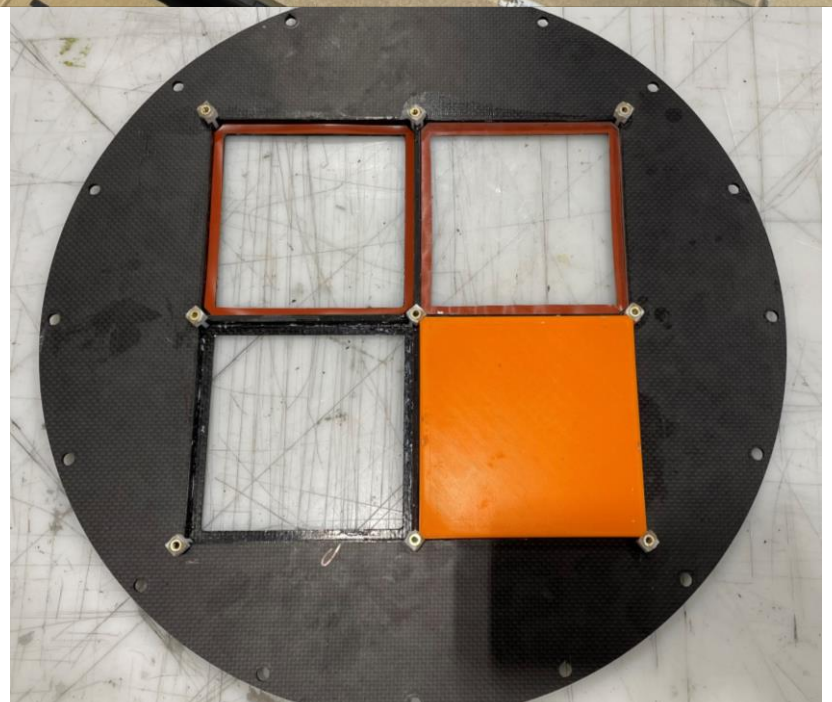


- Bond lines are no longer crooked
- Still some adhesive sag
- Laser scan in next few days will show cylindricity, radius, and flatness
- Machining will start next week

Sealing Test

- Silicone face seal testing in progress
- 2.5 mm thick, 30A shore hardness seals are being cast. Red seals as placeholders
- 3D-printed attachments with heat-set inserts epoxied to sensor plate
- Sensor hold-downs printed and ready for test
- Glass pieces added under sensor blanks to provide smoother sealing surface





Sealing Test Next Steps

- Leak test with full setup will be repeated this week before shipment to BNL
- Ready to send out with all parts by end of next week