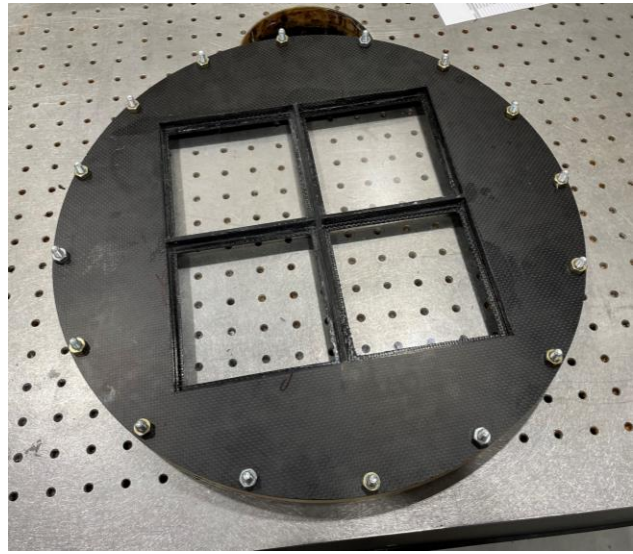
PURDUE UNIVERSITY

CMSC Composites Manufacturing & Simulation Center

pfRICH Sensor Plate Prototype



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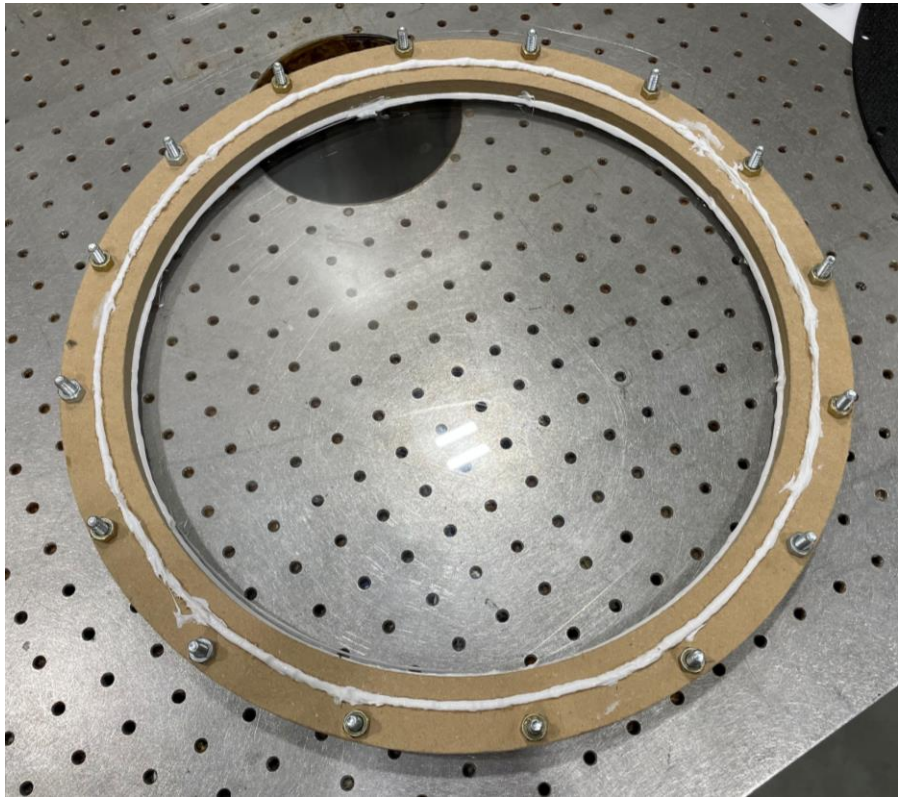
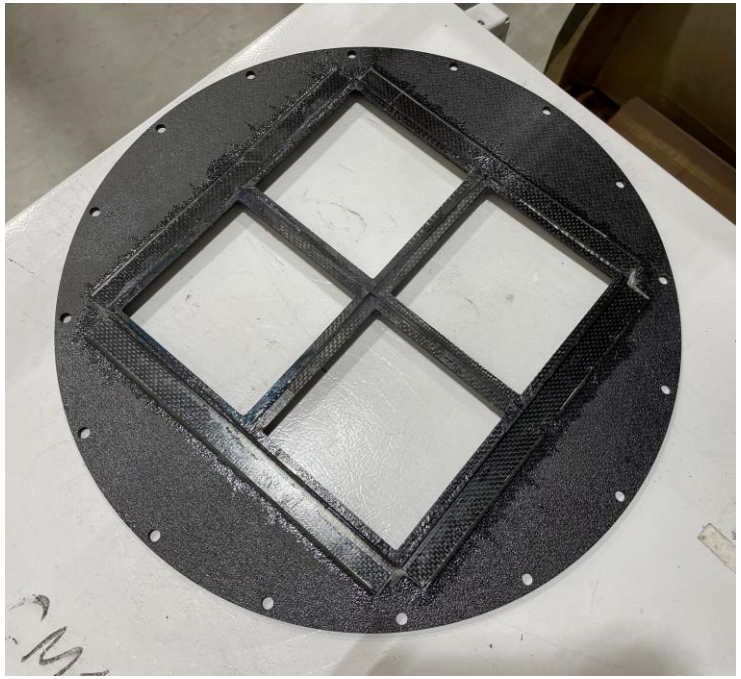
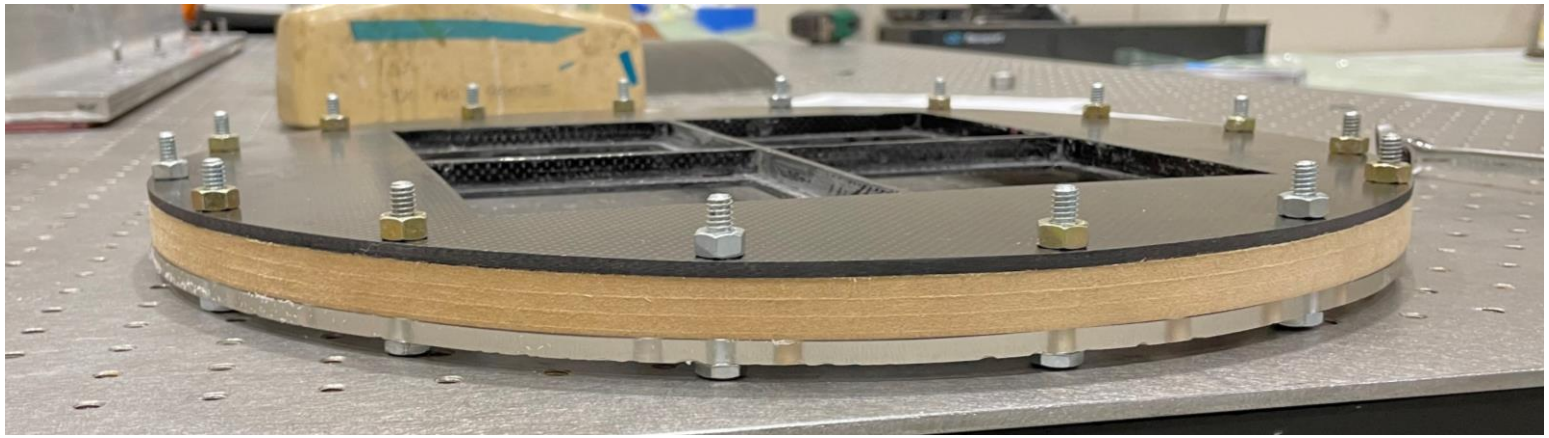
15 July 2024

Seal testing frame

- Full small scale sensor plane is complete
- Seal test setup is ready
- Sealed with silicone caulk
- Will test sensor seals as soon as a working method is found

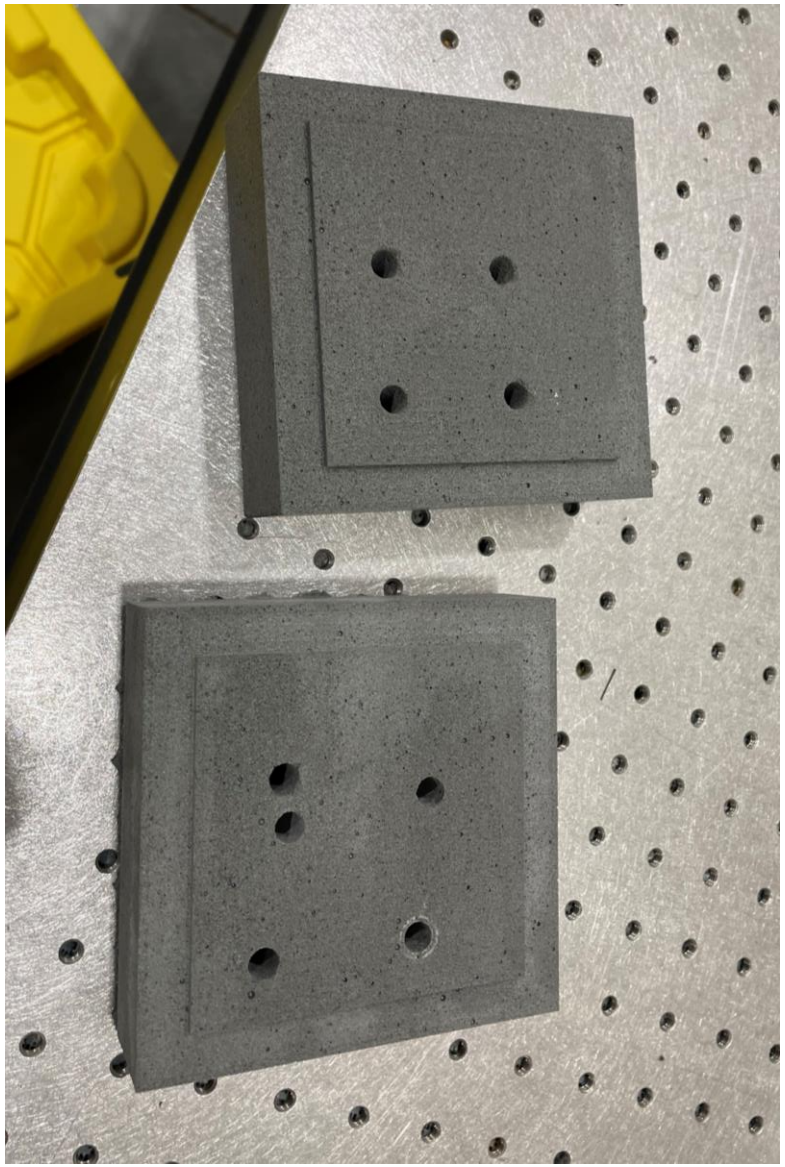






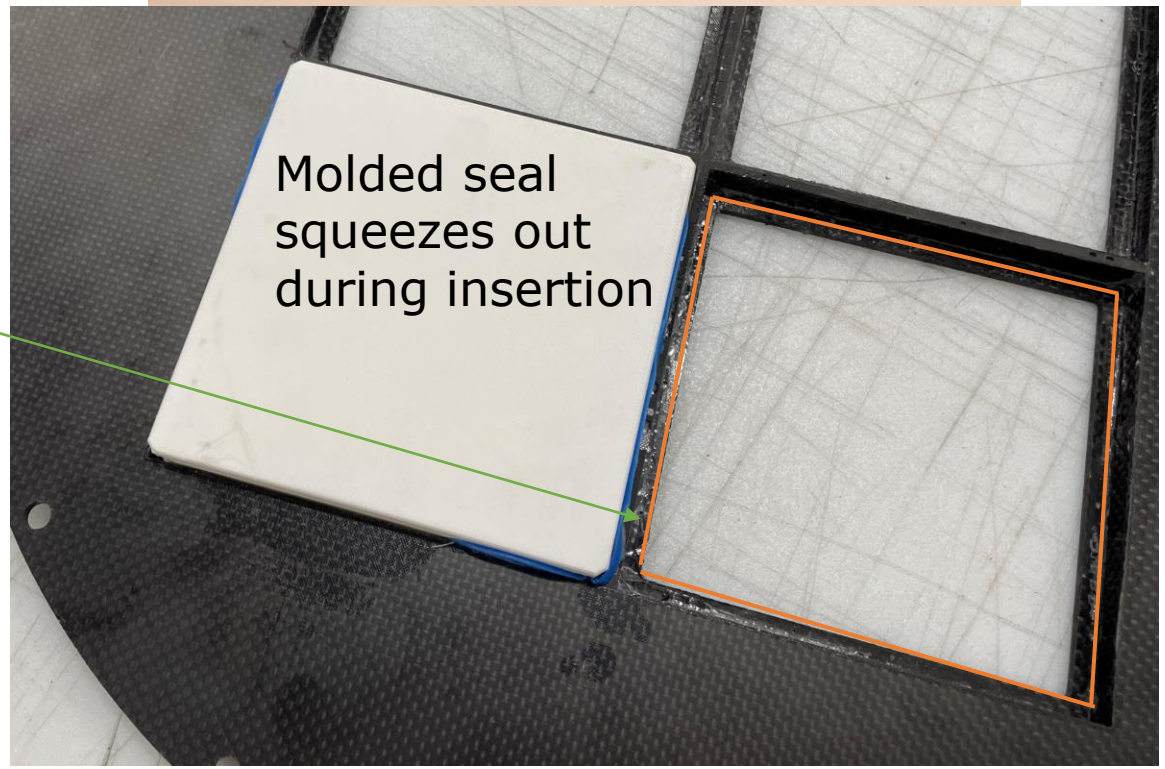
Sensor frame prototype progress

- 10 of 15 sensor frames are made
- 2 more tools made to accelerate production
- Trimming process is much improved
- Bonding procedure will be slightly modified based on results from sealing test plate
- Outer plate, interstitial beams, and L-brackets will be laid up next week
- Aiming to have all parts made, if not bonded, by July 30th



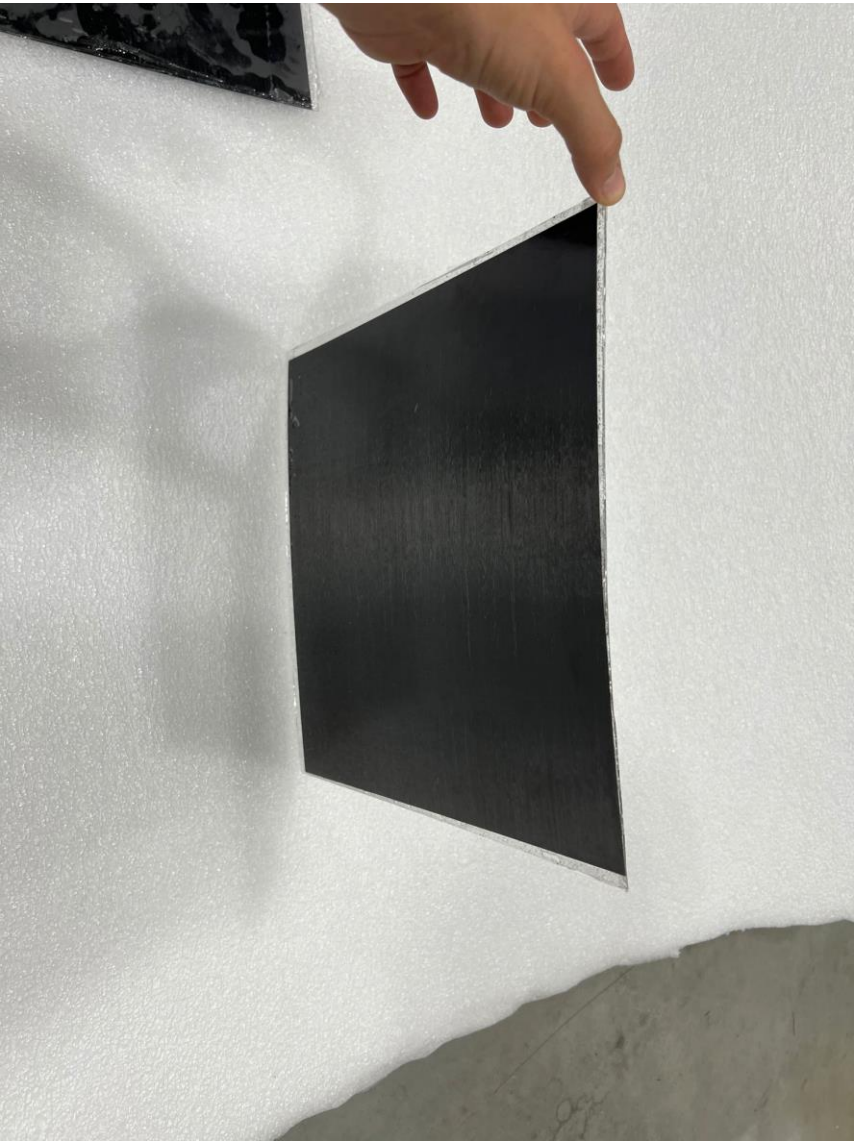
Sealing

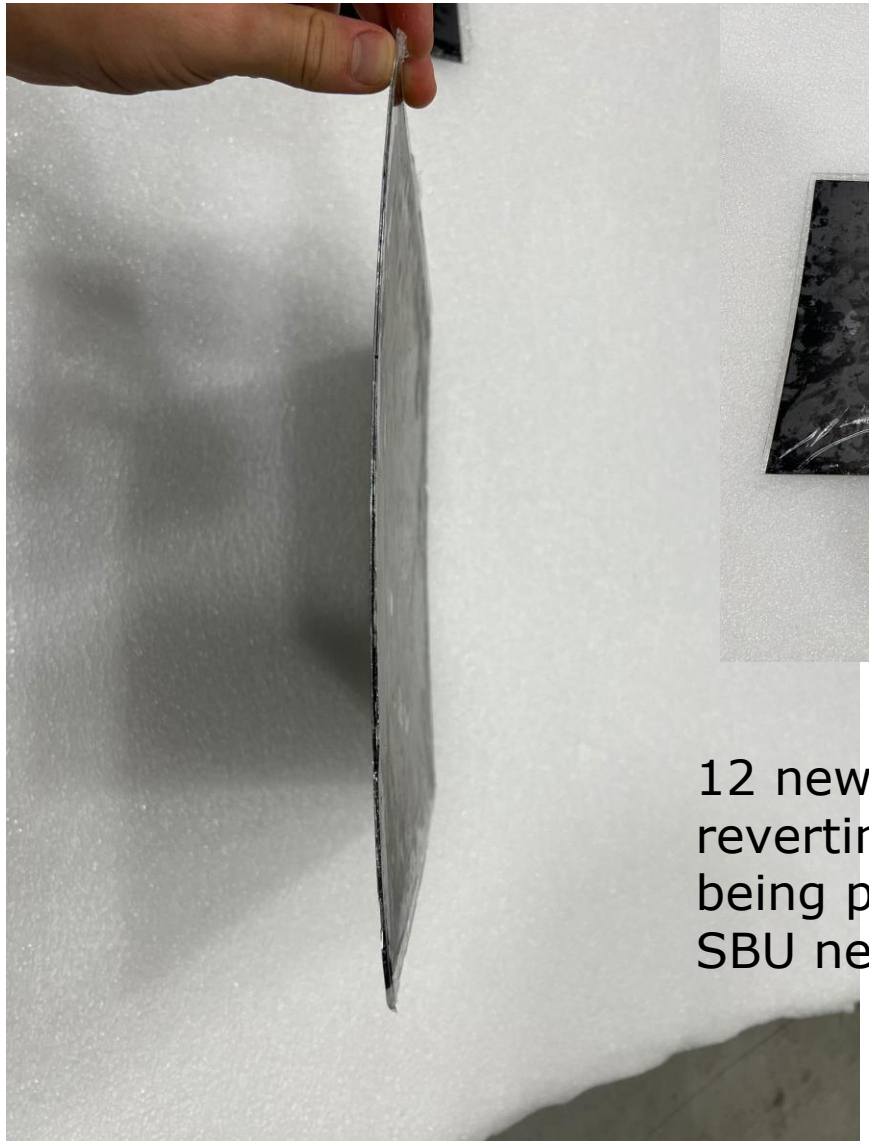
- Nylon mesh reinforcement did not increase the usability of the seal
- Radial seal is deemed infeasible
- Amount of tension required to hold it tight is all but impossible to get in such a small space on square profile
- Will test silicone putty seal
- Reusable non-hardening putty, rolled and pressed into corner of sensor frame before sensor insertion
- Multiple putties ordered for testing

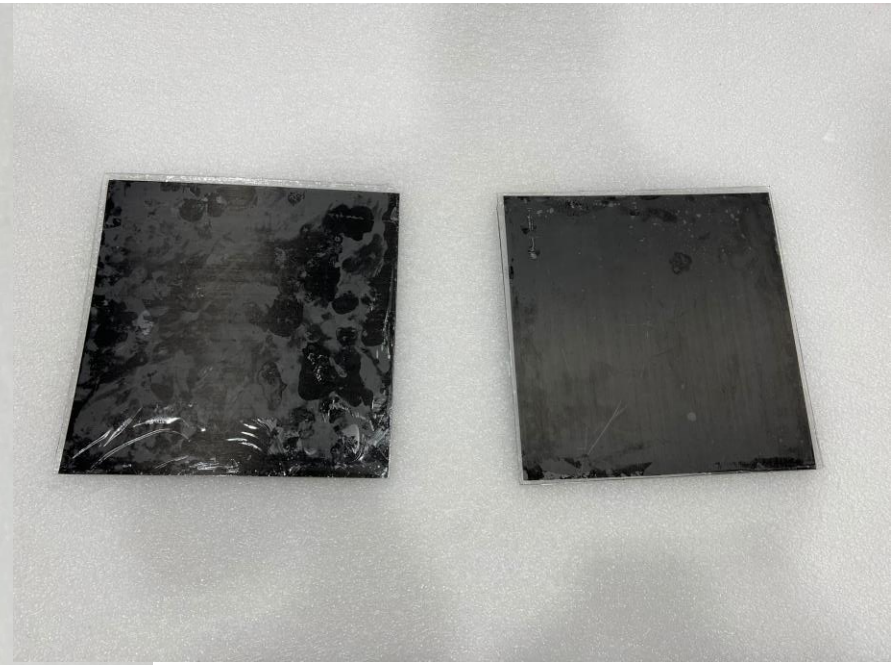


2 more curved outer mirror substrates are ready

Will add the 3D printed back ribs and ship to SBU – early next week

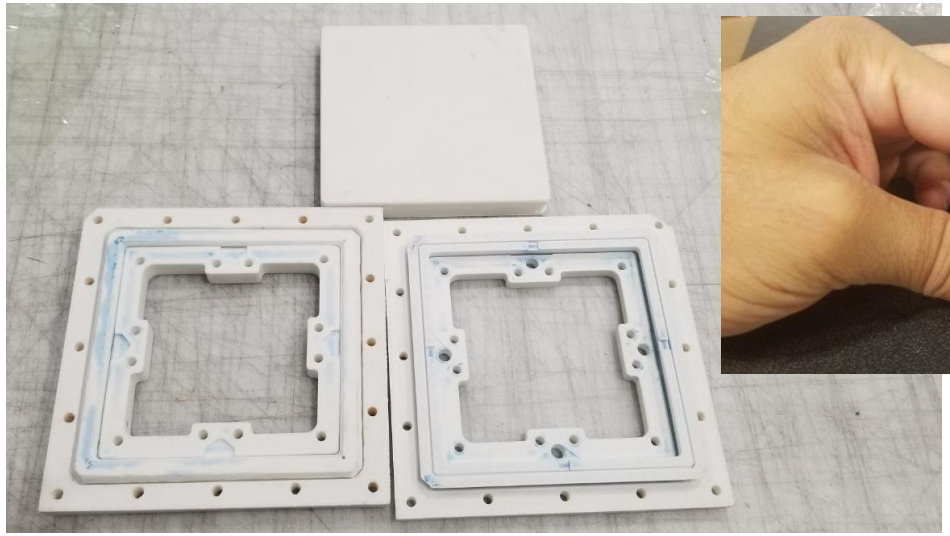


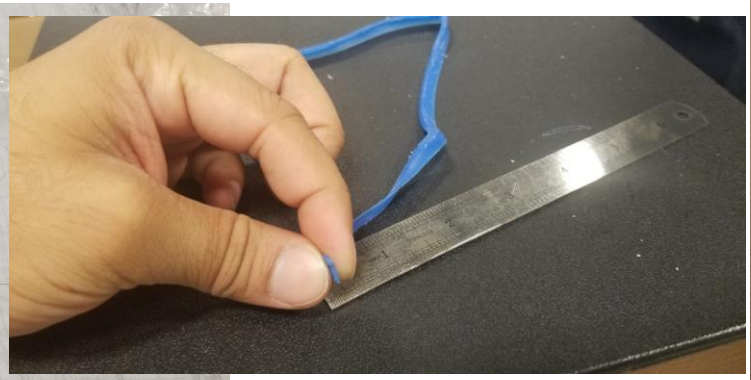


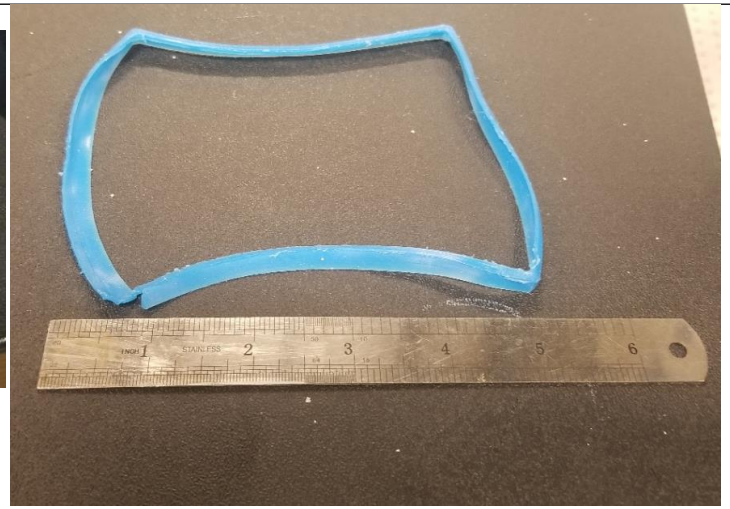


12 new 7x7cm flat samples with reverting back to the old method being prepared and will be shipped to SBU next week

Picture frame and sealing updates







On going attempts for the sealing tests and preparations for the full sensor plane prototype