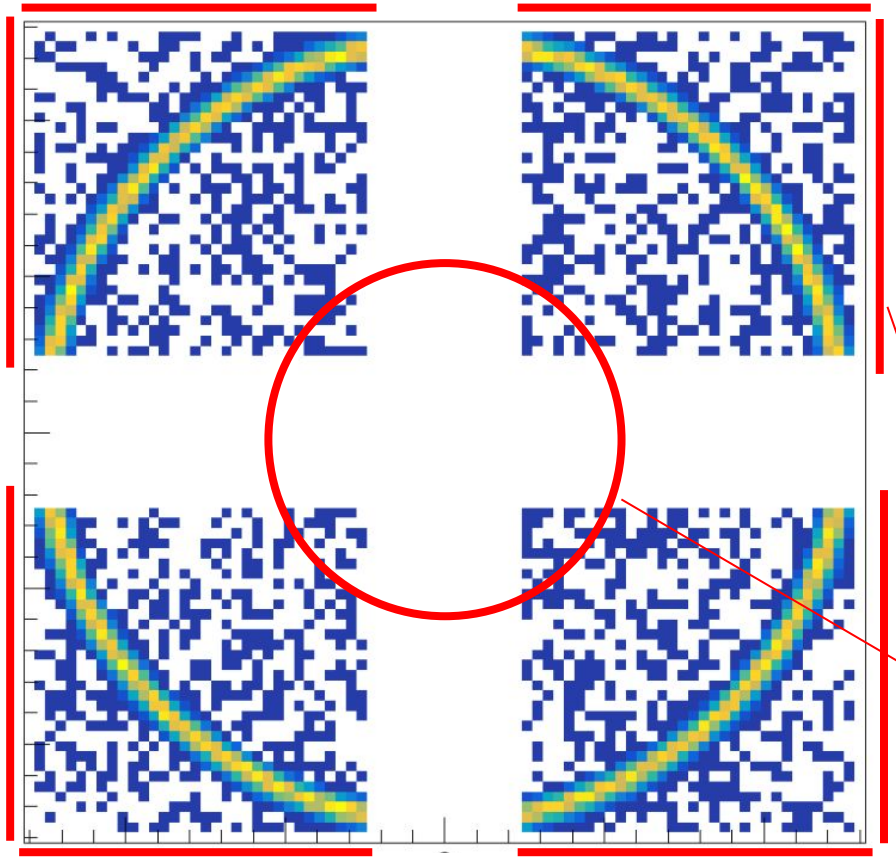
pfRICH Mirror Strategy

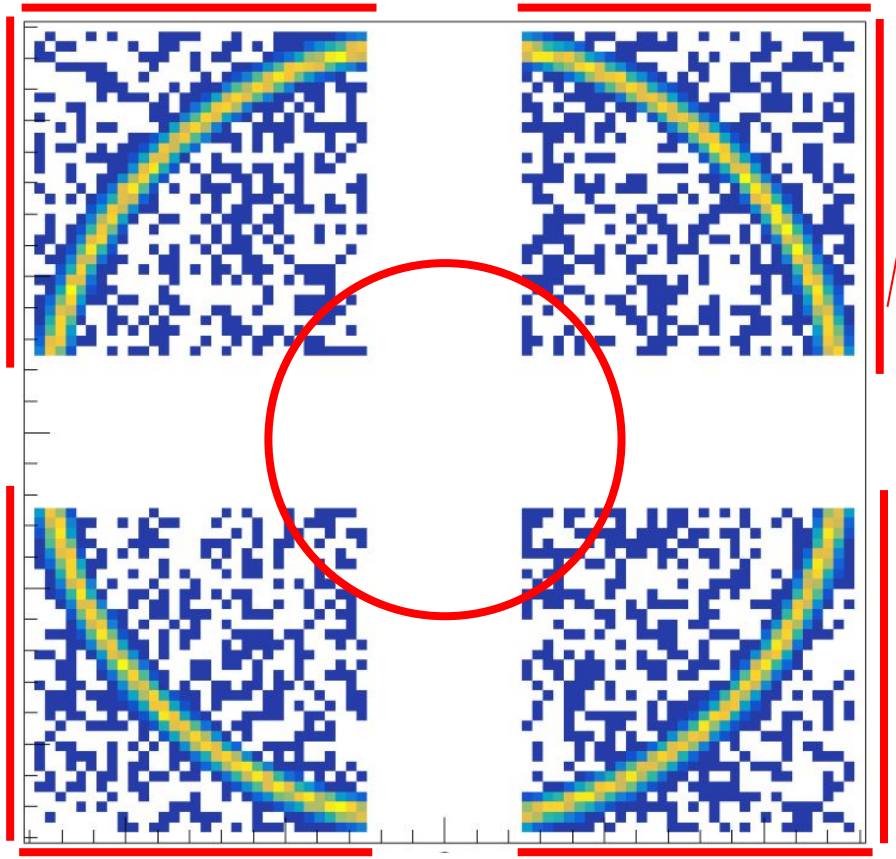
Feb 12, 2024

Needed for the beam test



- **What are we trying to demonstrate here?**
  - Bonding reflective layer to the substrate (no kinks)
  - Substrate smoothness (Purdue)
  - Sufficient reflectivity (SBU)
  - Lexan choices
  - Compares to ESR
- **Proposed configuration:**
  - Flat side mirrors x 8
  - Cone segments x 1

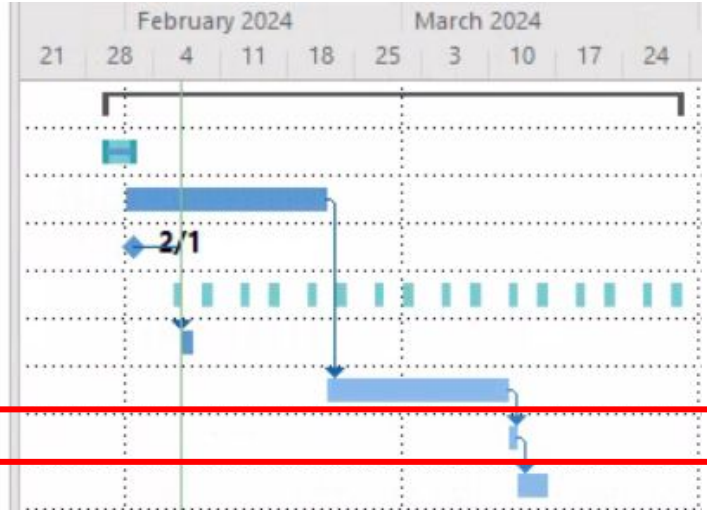
Flat side mirrors



- **Flat side mirrors**
  - 8 pieces,
  - 4 inch x 4 inch in size
  - Purdue carbon fiber backing
  - >80% reflectivity @ 300 nm
  - Bonding with no kinks

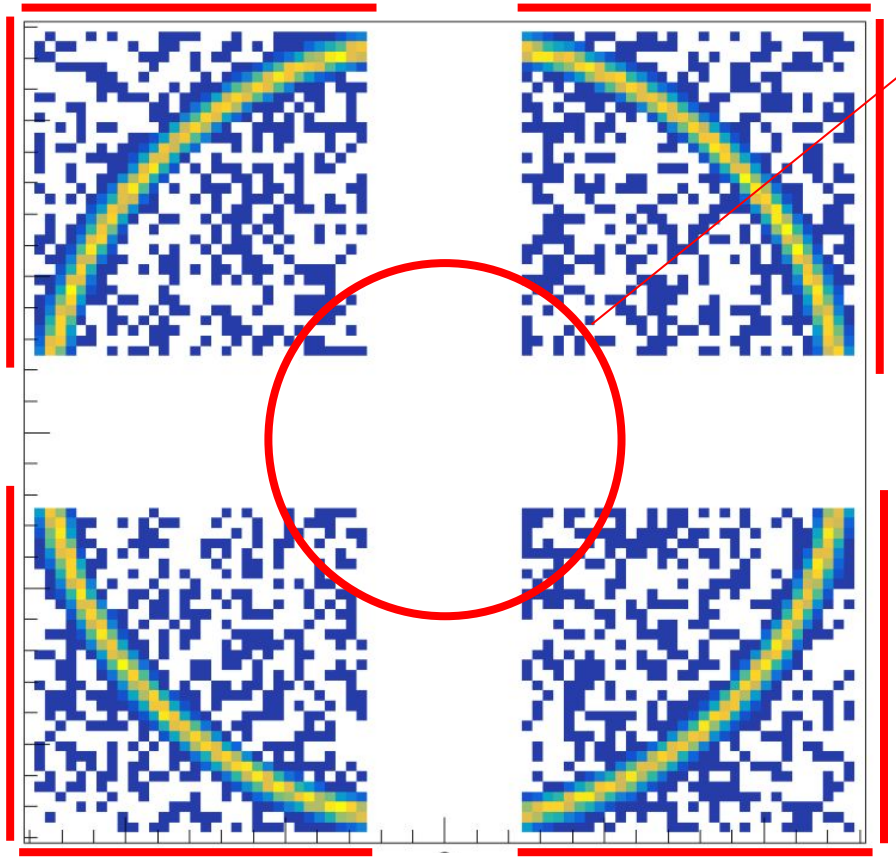
Flat side mirrors consideration and timeline

Task Name	Durati	Start
Stony Brook (mirrors)	**43 days**	**Tue 1/30/24**
Evaporation 3 Reflectivity Test	3 days	Tue 1/30/24
Designing Large Lexan Cone	14 days	Thu 2/1/24
Ordering Reference Mirror	1 day	Thu 2/1/24
Bi-weekly Evaporation	**38 days**	**Tue 2/6/24**
Reference mirror arrives	1 day	Wed 2/7/24
Lexan Cone Completion	13 days	Thu 2/22/24
Full Lexan cone coating	1 day	Tue 3/12/24
Lexan cone reflectivity test	3 days	Wed 3/13/24

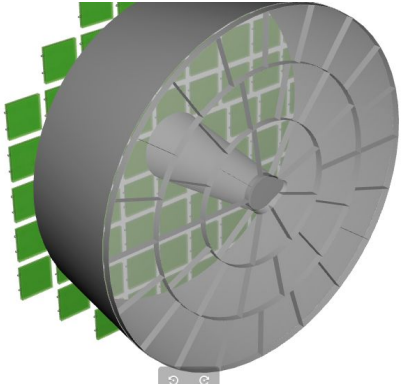


- **Bonding methodology Lexan to Carbon Fiber: tape? DP460?**
- **ESR will be used for comparison purpose**
- **Reflectivity boost**
  - **Lower Cr layer, boost Al layer**

Curved mirrors



- Curved mirrors
  - Molding involved
  - Convex reflective surface
  - Directly bonding Lexan to the carbon fiber?
  - Un-likely that the segment piece can be ready before March 12th.



Path Forward and discussion

- 8 flat side reflectors will be ready for the beam test.
- It is recommended that the Purdue colleagues focus on the Inner cone segment mirrors (Concave molding).
- More?