



# Status of AT-TPC prototype

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LAMPS meeting, 2019.11.28

# Status of Sejong Univ.

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- **인력**

- 김용선
- 송혜빈 (석박사 통합 1년차)
- 김근우 (석박사 통합 1년차) will join LAMPS from 2020

- **외부 기관과의 협력**

- 현재 없음

- **연구 성과**

- Prototype design
- 세종대에 제작 환경 구축
- 학회 발표
  - Poster @ KPS by 송혜빈
  - Talk @ NuSYM by 김용선

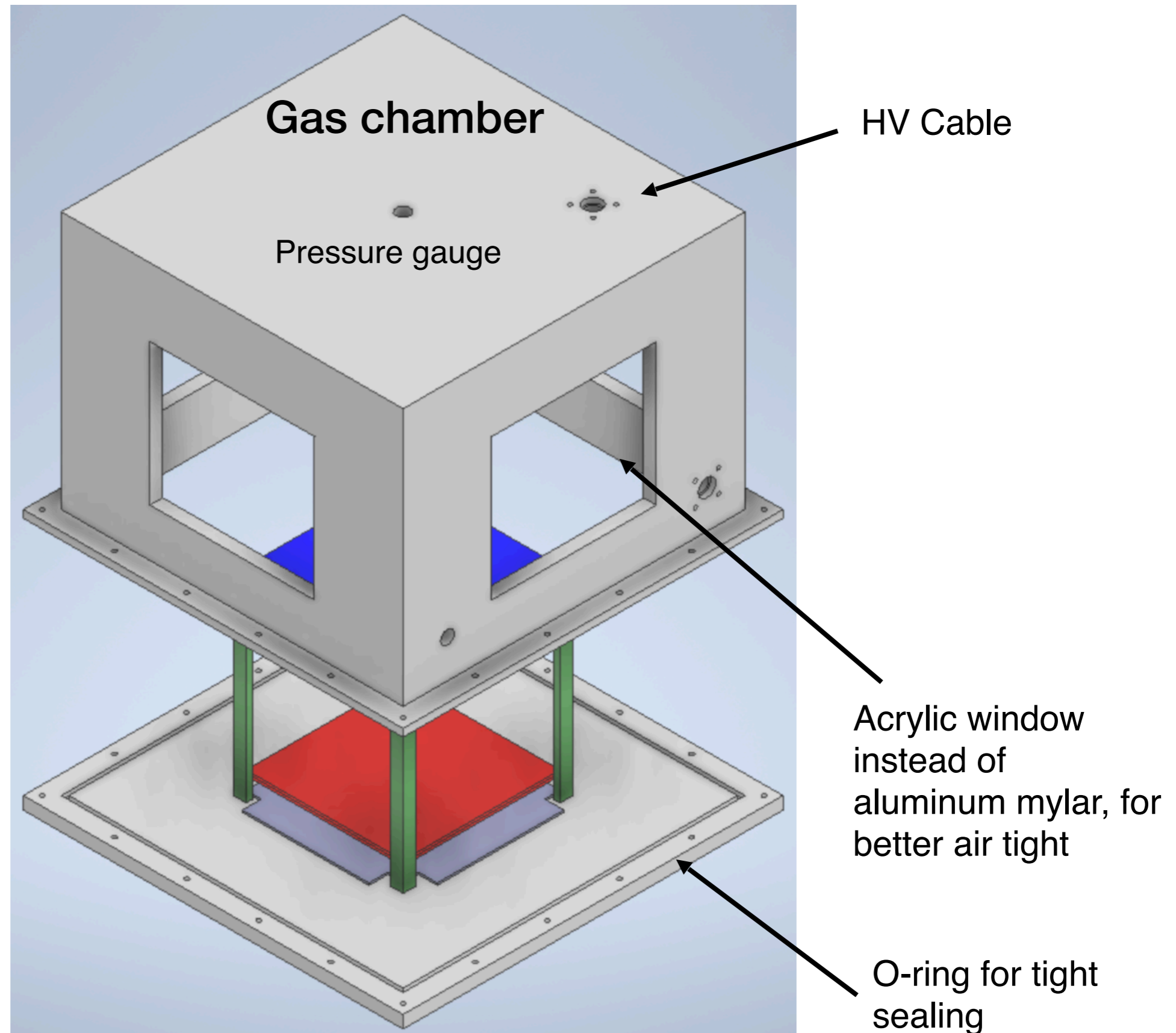
# Expectation

	19/04	19/05	19/06	19/07	19/08
Field Cage	계획	디자인 E-Field	구매	시작품의 시작품 제작	테스트
Gas System	계획	디자인	구매 견적	제작	테스트
Readout Chamber	계획	디자인	구매 견적	제작	테스트
Geant4	계획	Event Gene	→	Geom	→
GET system	계획	테스트	→	→	→

# Reality

	19/04	19/05	19/06	19/07	19/08	19/09	19/10	19/11	19/12	20/01	20/02
Field Cage	계획	디자인 E-Field	구매	시작품의 시작품 제작	테스트	<b>GARFIELD study and Search for material</b>		<b>구매</b>	<b>조립</b>	<b>테스트</b>	
Gas System	계획	디자인	구매 견적	제작	테스트						
Readout Chamber	계획	디자인	구매 견적	제작	테스트						
Geant4	계획	Event Gene	→	Geom	→						
GET system	계획	테스트	→	→	→						

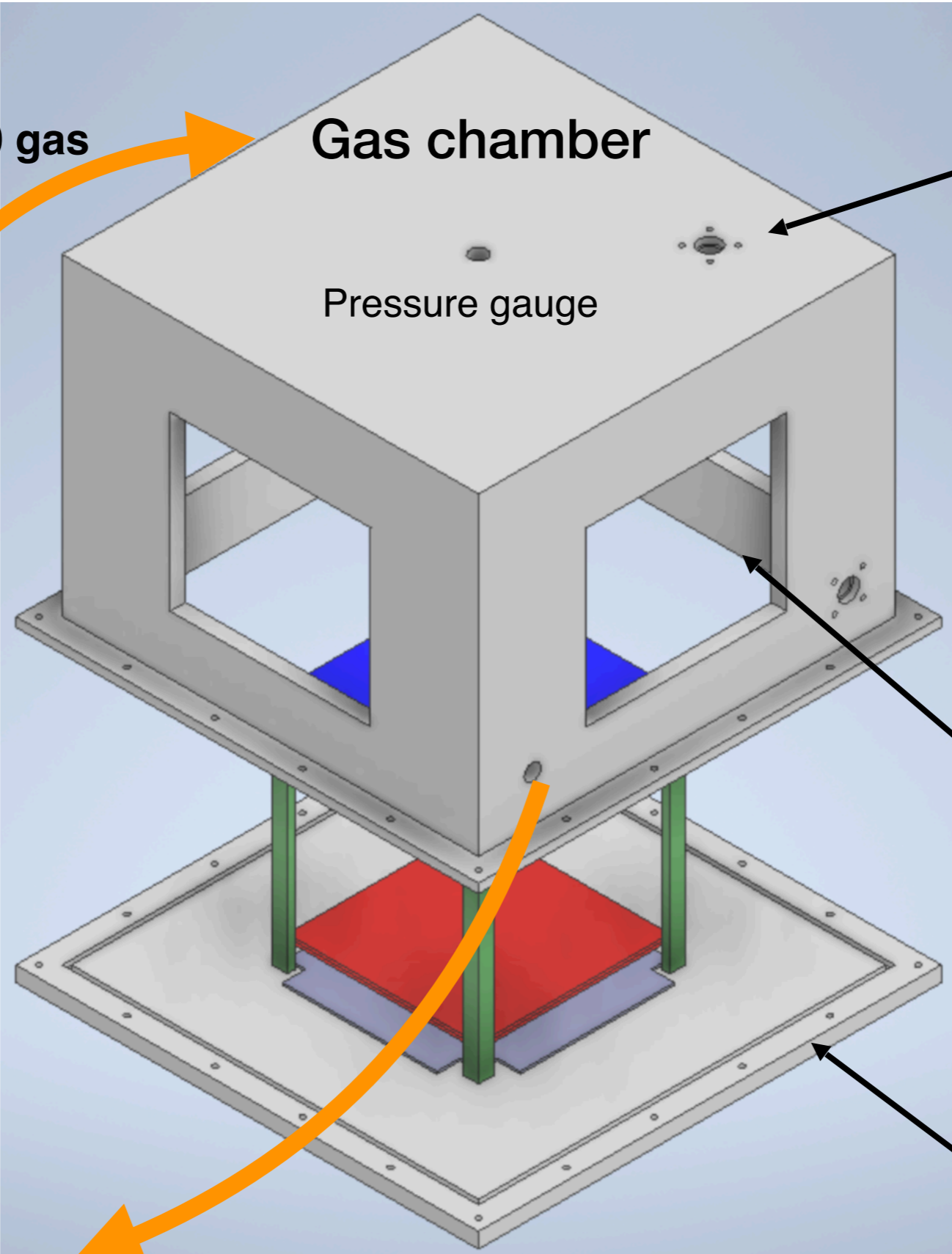
# Final design of field cage



# Final design of field cage



P10 gas



Gas chamber

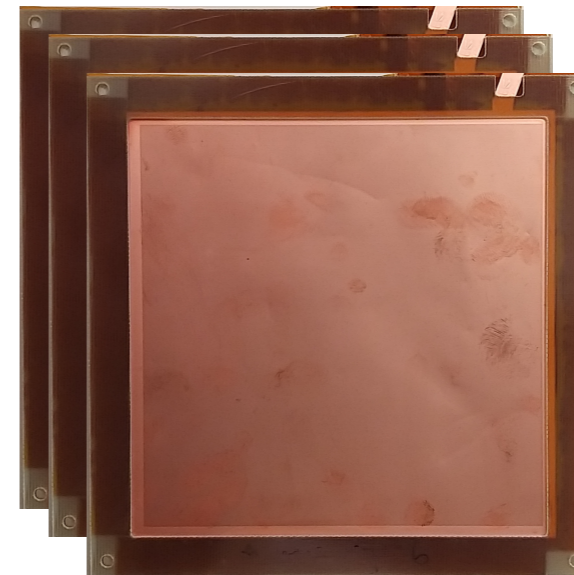
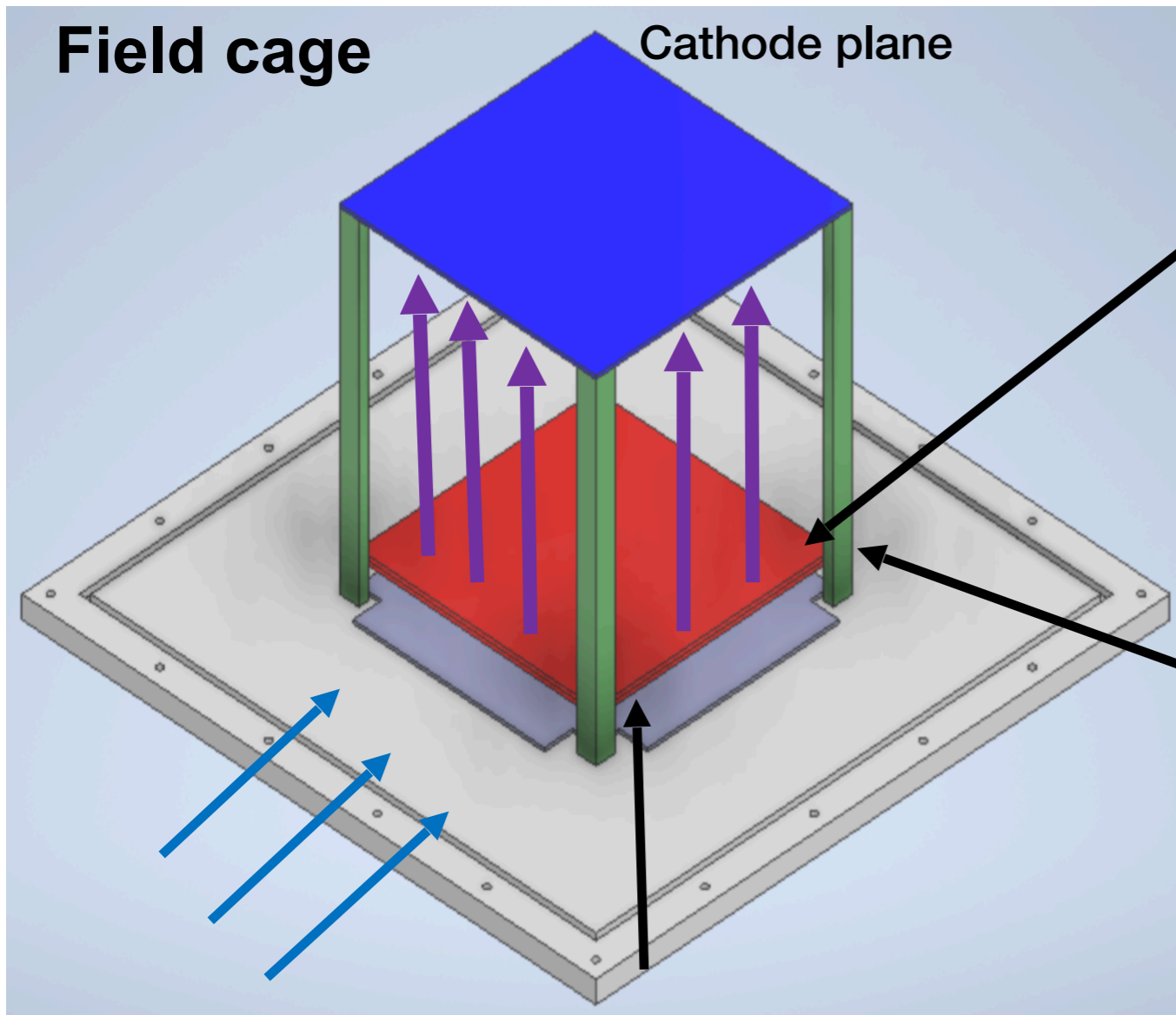
Pressure gauge

HV Cable

Acrylic window instead of aluminum mylar, for better air tight

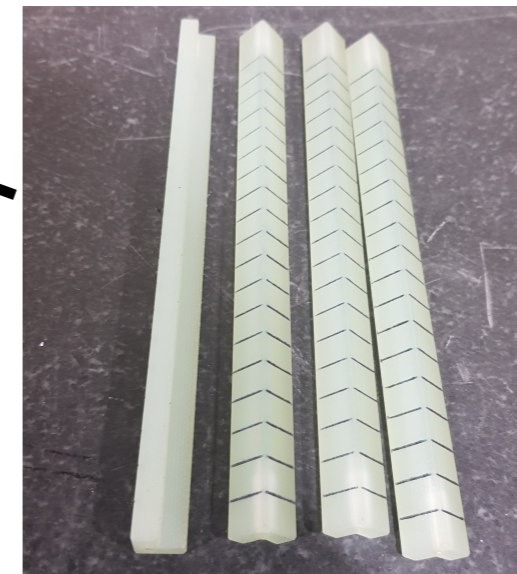
O-ring for tight sealing

# Status of material order



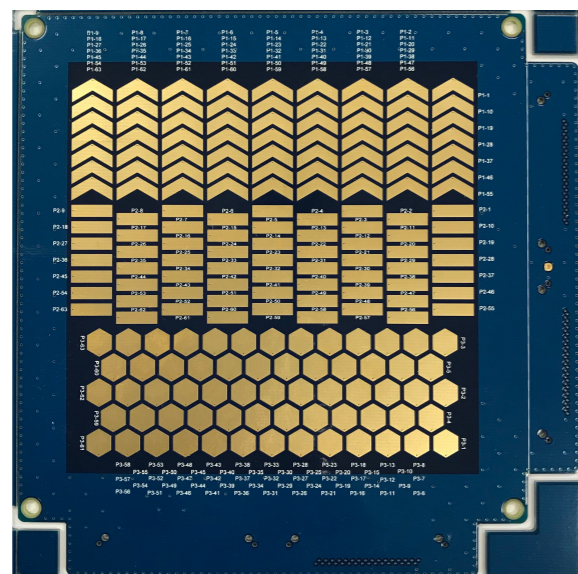
**Triple GEMs**

- To be delivered next week



**Voltage Dividing Pillar**

- 3d-Eco Co.



**Read out pad**

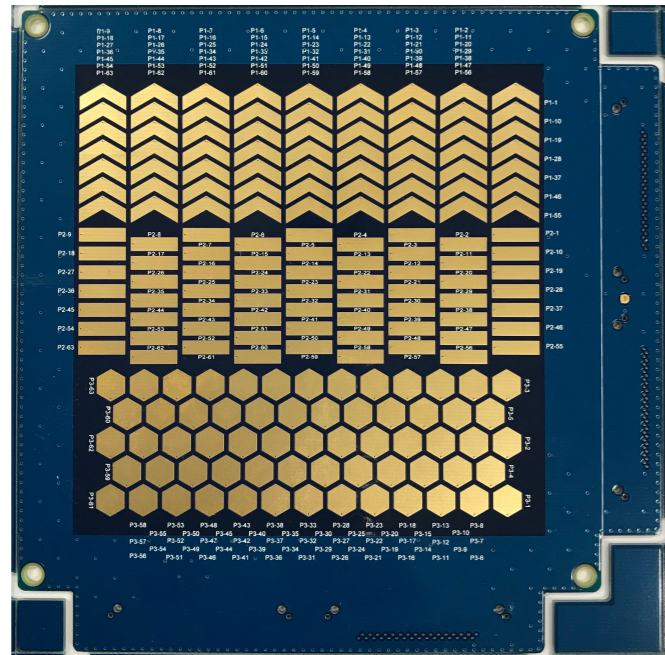
- ZAP board, conversion board to be ordered next week



**DT1470ET  
(ordered)**

# AT-TPC – Readout system

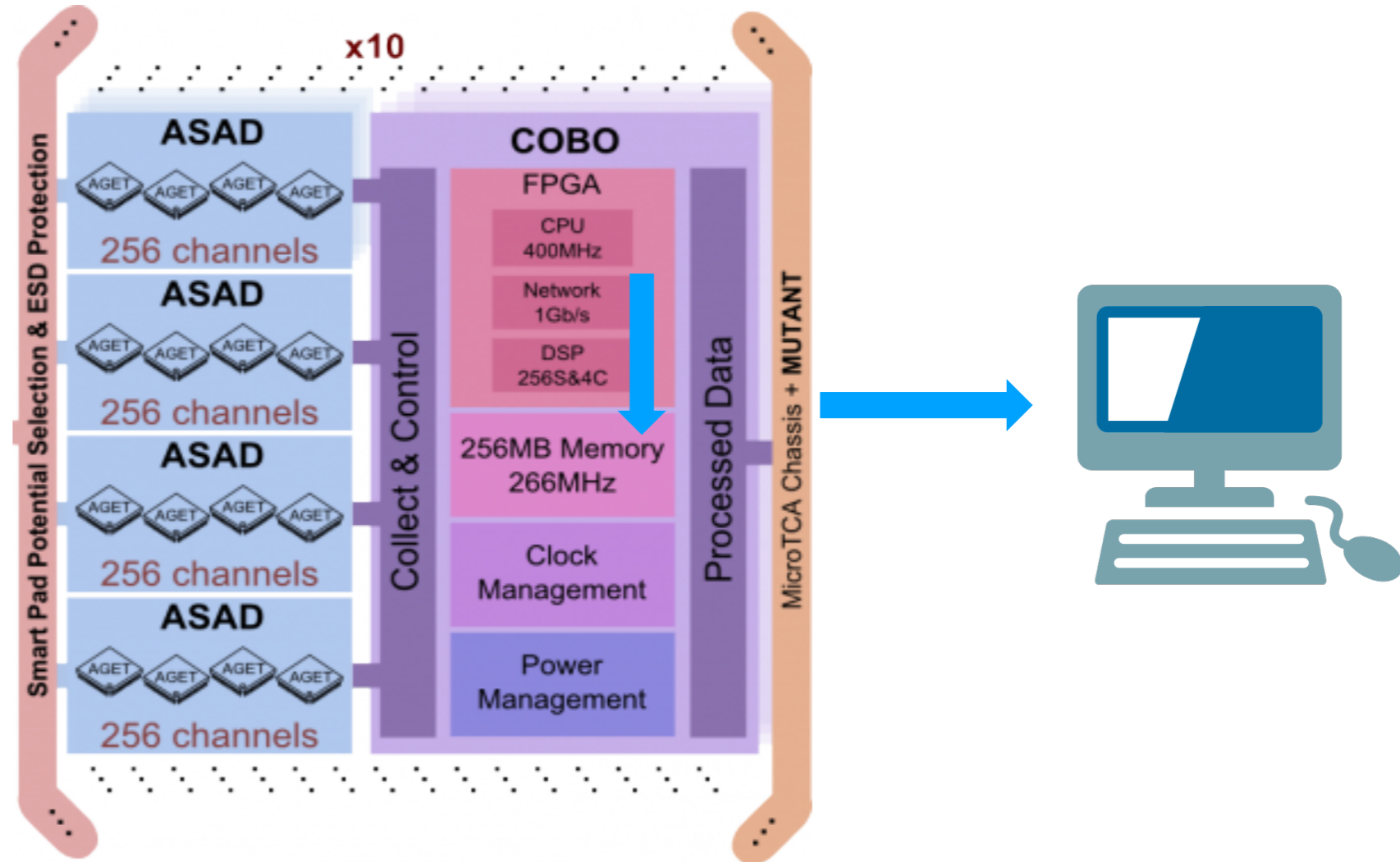
## Signal flow



256 channels

Conversion Board

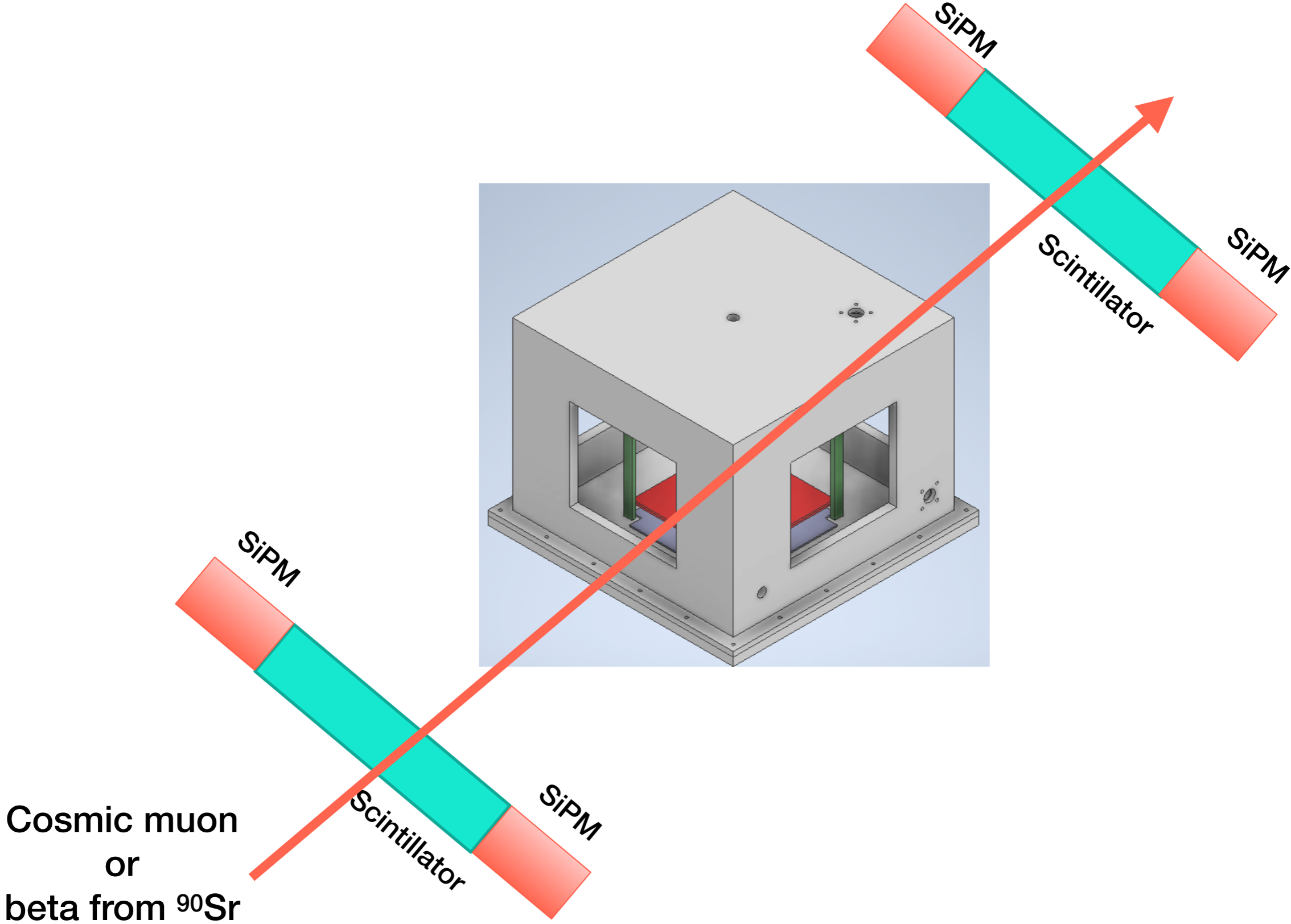
ZAP board



- Will use 사업단's AsAd board and a reduced CoBo for the moment.
- Need a concrete plan of GET for the main experiment.



# Gas system and trigger scintillator



# Current Status & Plan

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- **Experimental setup**
  - Materials and equipment are ordered, and delivery will be complete in 2 weeks
- **Prototype test : Jan – May 2019**
  - Test with P10 gas at 1 atm
  - Test with Helium gas at low pressure (0.1 atm)
  - Preparation of He gas system
  - Development of tracking algorithm
- **Production of real size AT-TPC**
  - Aim to start in June
  - Should contact MSU to construct GET setup