

Highlights from SYSU

Liaoshan Shi on behalf of the SYSU ATLAS team
25/04/2026

SYSU ATLAS Team

- Young institute and young group

- The school of science SYSU was founded in 2021.
- Joined ATLAS in Oct 2022.

- ATLAS team members:

- 3 faculty members:
 - Yang Liu: TauWG conv (L2, 2024 –)
 - Bingxuan Liu: JDM sub (L3, 2023 - 2025)
 - Liaoshan Shi: Trigger menu coord (L2, 2025 –)

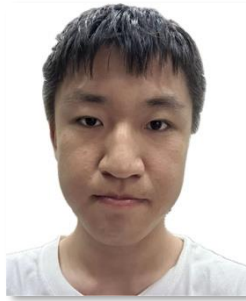
3 faculty members



Joined SYSU
in Oct 2025

1 PhD student

4 master students



+ undergraduate
students

+ 1 incoming
postdoc

SYSU ATLAS Activities: Physics analyses

● SUSY searches

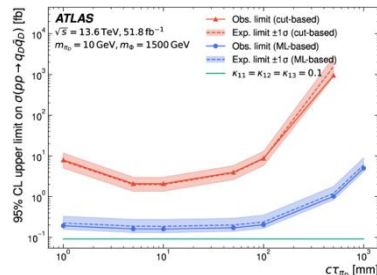
- EWK SUSY search in 2L/3L final states
- Strong SUSY search in SS3L final states
- GMSB scanning
- RPC-RPV (submitted to JHEP)
- pMSSM-general/3G scanning

● Long-lived particles, dark QCD and dark matter searches.

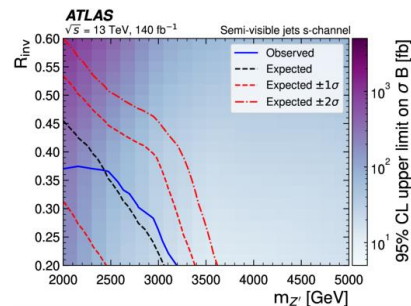
- Emerging Jets (Rep. Prog. Phys. 88 (2025) 097801)
- Semi-visible Jet s-channel (Phys. Rev. D 112, 012021)
- di-b/c-jet resonance
- mono-b/c
- Z+c/cc with charming tagging
- SVJ + ISR

● Di-Higgs and Higgs BSM searches

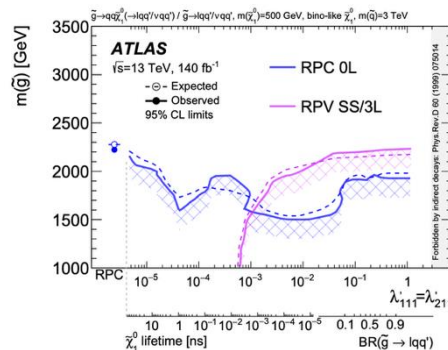
- HH->bbbb
- H->Za->llyy search
- H->aa->bbbb



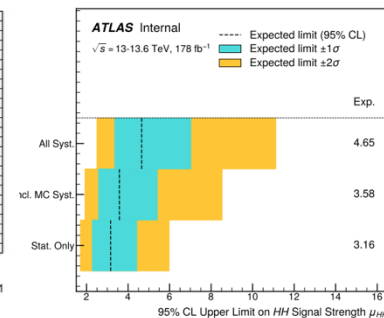
Emerging Jets (Rep. Prog. Phys. 88 (2025) 097801)



Semi-visible Jet s-channel (Phys. Rev. D 112, 012021)



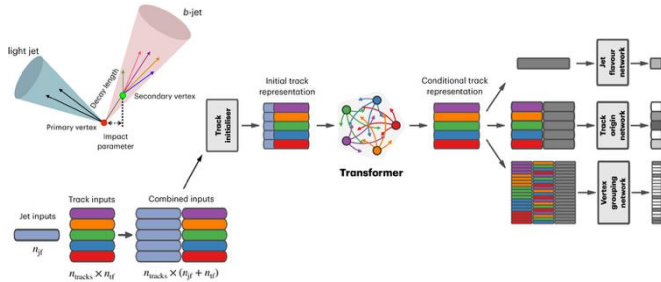
RPC-RPV reinterpretation



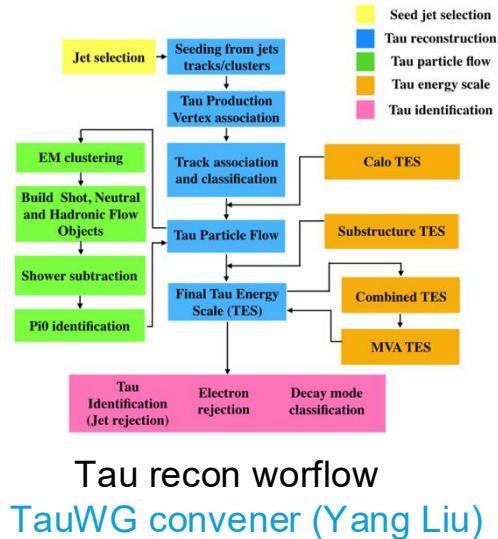
HH->bbbb

Trigger & Object Reconstruction

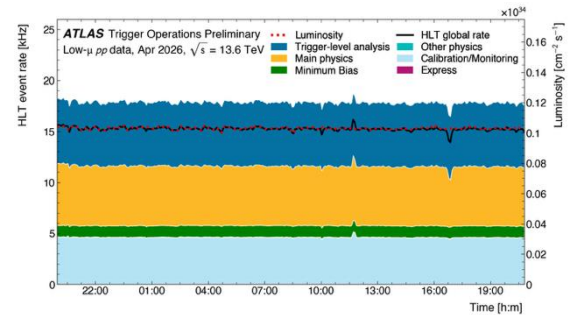
- Leading roles in Tau, FTAG object reconstruction and identification
- Leading role in trigger menu and b-jet trigger.



GN2 (Nature Commun. 17 (2026) 541)
 Contact editor (Bingxuan Liu)



Tau recon workflow
 TauWG convener (Yang Liu)



Output rate of a low-mu run in 2026
 Menu coordinator (Liaoshan Shi)

Detector Upgrade

- ITk sensor QA + irradiation performance studies
- ITk modular manufacturing tool production

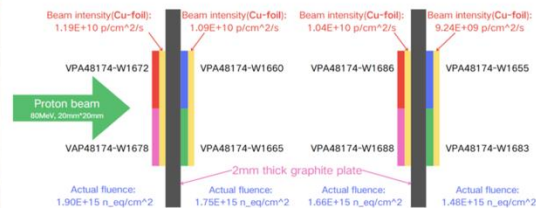
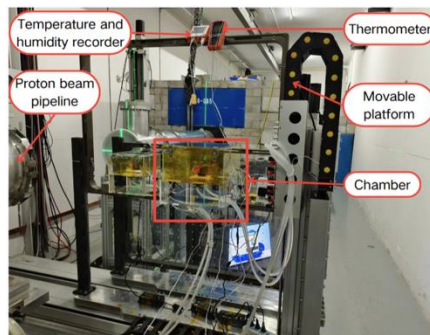
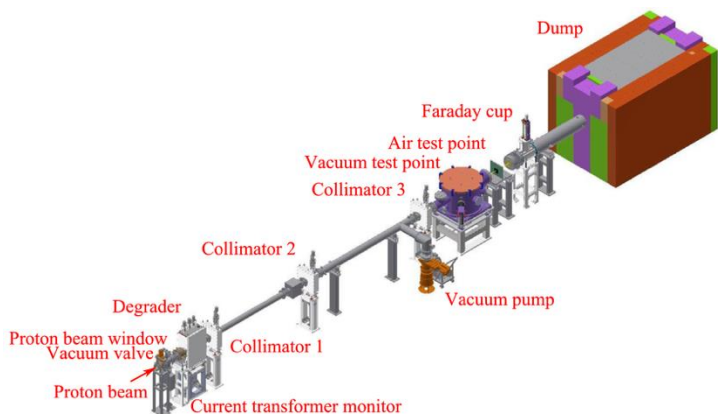


图 3-9: 位于中国散裂中子源 (CSNS) APEP 空气测试点的辐照装置 (左); 样品和铜箔在质子束中的示意图, 以及束流强度和实际注量的估算 (右)。

OTP summary in 2025

- 6.0/6.25 OT for 2025/2026

	Quota	Completed	Percentage
Class 1 & 2	0.31	0.17	55%
Class 3	1.80	1.16	64%
Upgrade	1.68	0.82	49%

HEP Exchange Camp with Hong Kong cluster

- In 2025, SYSU hosted the 1st Guangdong – Hong Kong Faculty and Student Exchange Camp.
 - In depth discussions on ATLAS between SYSU and the Hong Kong cluster.
- In 2026, we aim to expand it to a broader Mainland China – Hong Kong exchange camp
 - Invitation-based: Invite more institutes from mainland China to participate.
 - Broaden the scope of scientific exchange and collaboration and explore potential joint projects.
- Welcome to reach out to us if you are interested in participating.



Future plans

- Di-Higgs search and Higgs self coupling measurement
- SUSY in compressed regions
- BSM searches in unconventional signatures
- Using Higgs as a handle to probe BSM
- Global hadronic object reconstruction and identification
- ITk sensor and module performance studies
- TDAQ upgrade and Run 4 proto trigger menu