

CTA report 238 : General report

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CTA Consortium

25か国
>1500名



CTA-Japan 126名

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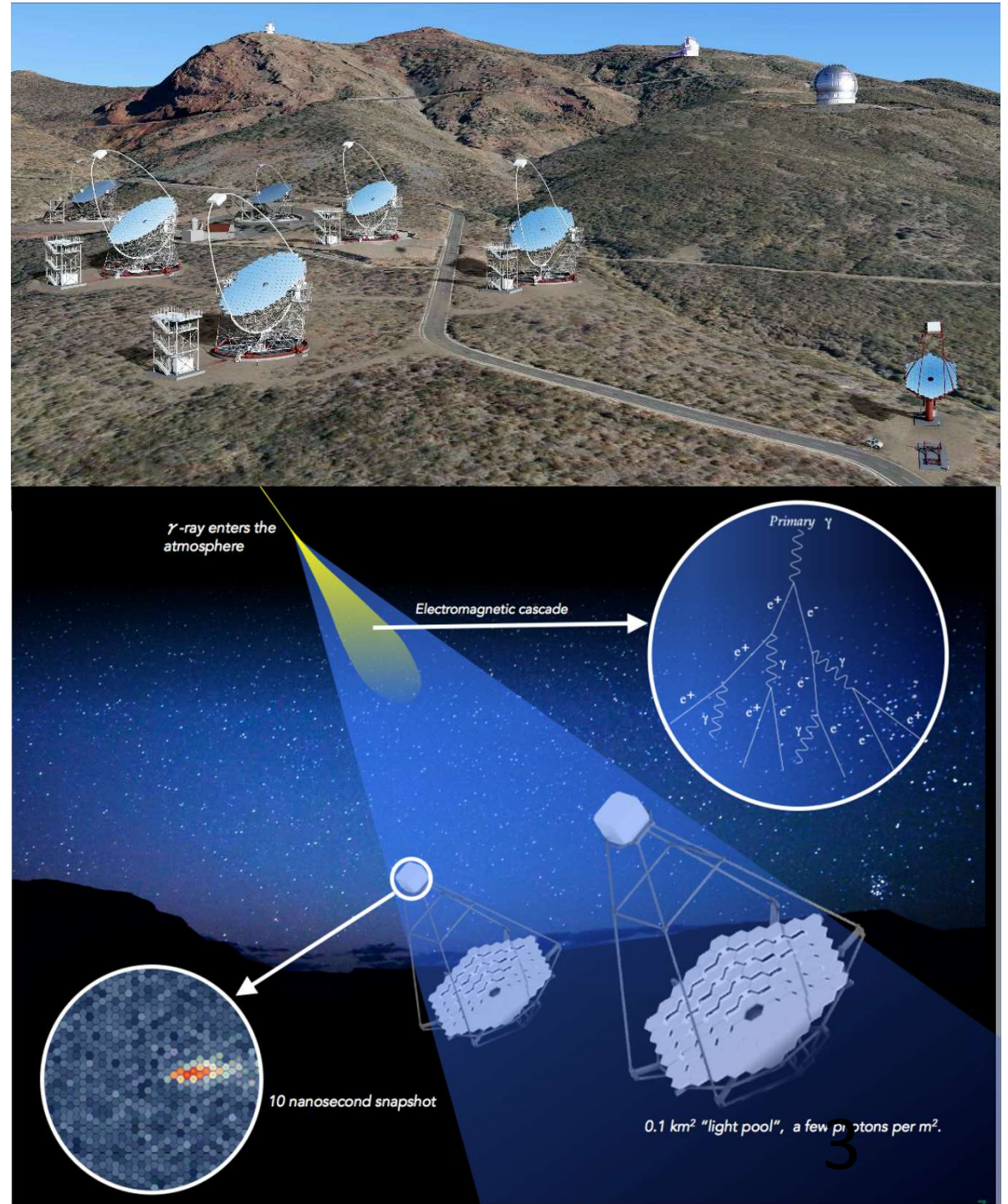
片岡淳

Cherenkov Telescope Array (CTA)計画

4~23m口径のチェレンコフイメージング望遠鏡を約100台配置し、20GeV~300TeVの超高エネルギーガンマ線を観測する国際共同実験。

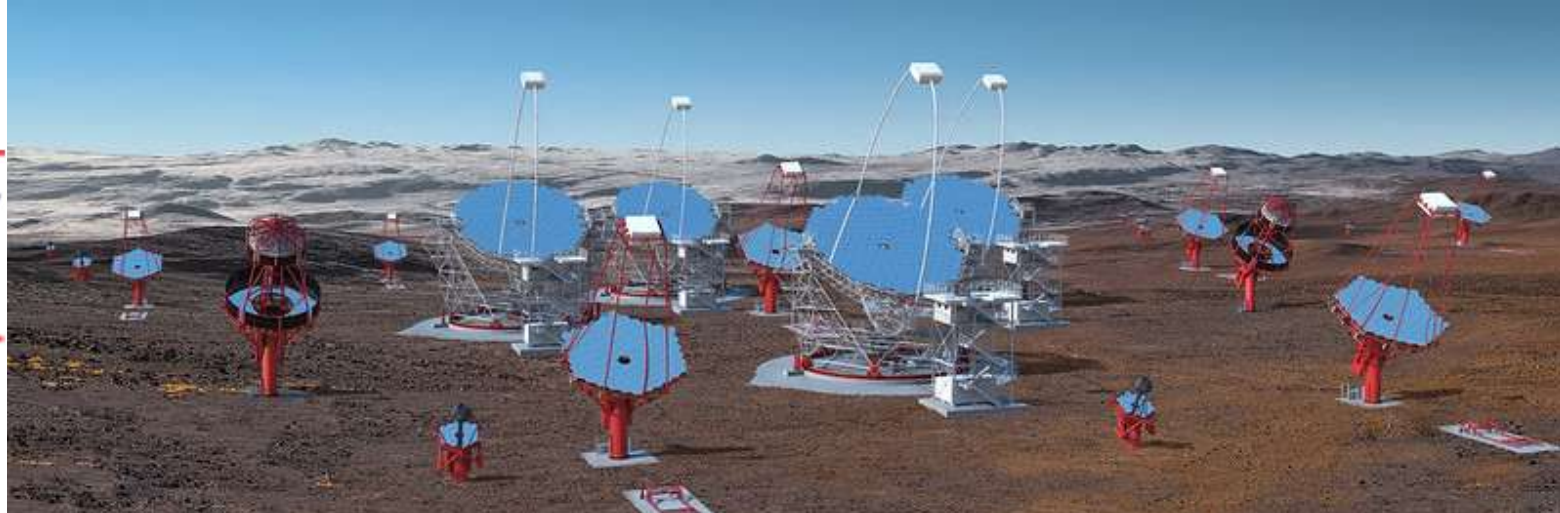
ガンマ線が大気中で引き起こす空気シャワーから放出されるチェレンコフ光を測定し、空気シャワーの形状と明るさからガンマ線のエネルギーと到来方向を推定。

AGN, SNR等ガンマ線を放出する高エネルギー天体検出数を1000個以上にする。
宇宙線起源、ブラックホール物理、ダークマター対消滅、背景赤外線の測定を目指している。





cherenkov
telescope
array



カナリア諸島La Palma島の天文台にある北サイトと、チリのアタカマ砂漠パラナルにある南サイト2か所に建設する予定。



<https://www.cta-observatory.org/project/technology/>

大口径望遠鏡(LST)

23m口径、パラボラ鏡、1855画素のカメラ、0.1度画素サイズ、4.5度視野
南北両サイトに4台ずつ配置

中口径望遠鏡

11.5m口径、Davies-Cotton、1764画素、0.17度画素サイズ、7.5度視野、南サイトに25台、北に15台

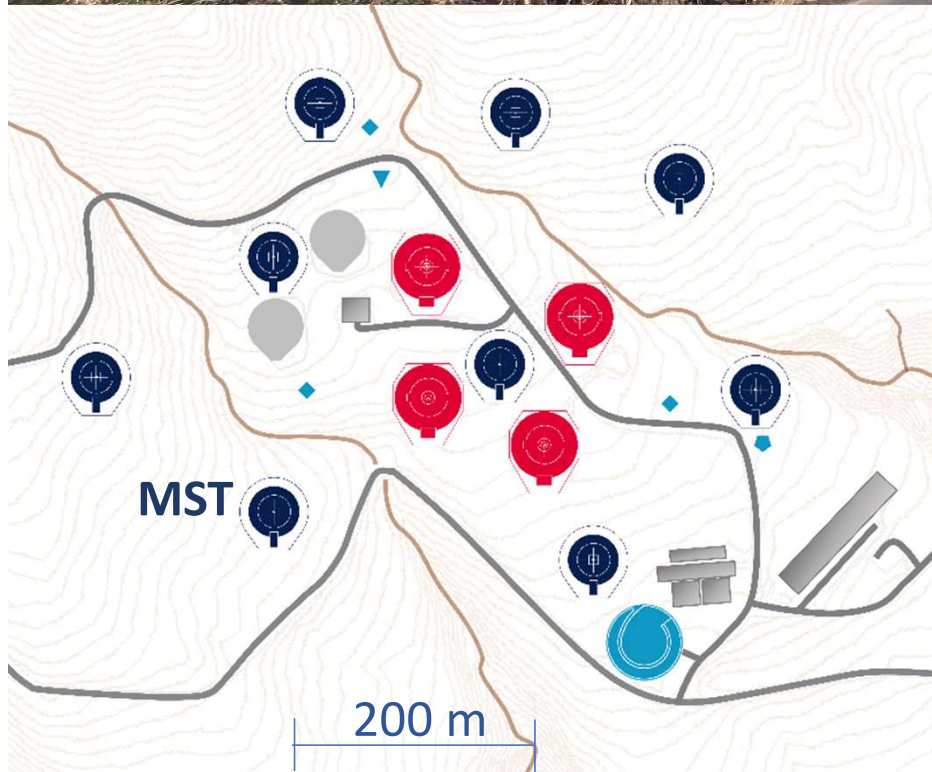
中口径Schwarzschild –Coudé望遠鏡

9.7m+5.4mの2枚鏡、0.067度画素サイズ、SiPMカメラ

小口径Schwarzschild-Coudé望遠鏡

4.3m+1.8m2枚鏡、10.5度視野
南に70台配置

North site: Canary Islands La Palma, Roque de los Muchachos Observatory



LST-1 had started operation since 2019.

LST-2,3,4 are under construction.
9 MSTs are planned to be built.

MAGIC-I, II and LST-1



LST-2



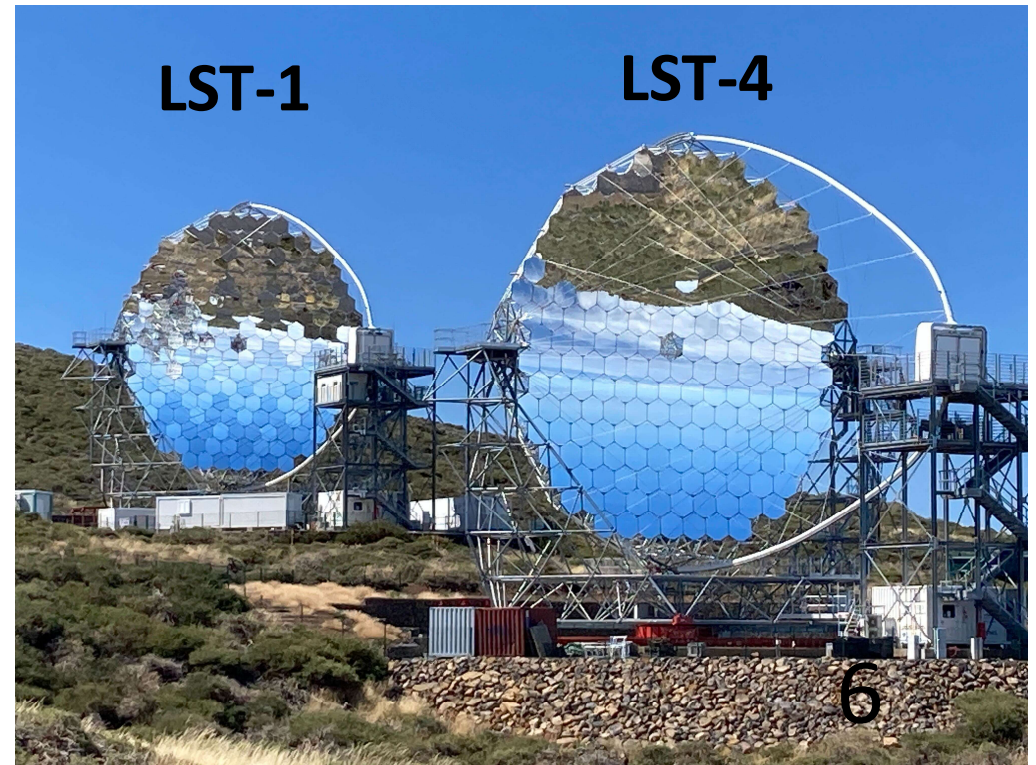
All mirrors on the telescopes

LST-3



LST-1

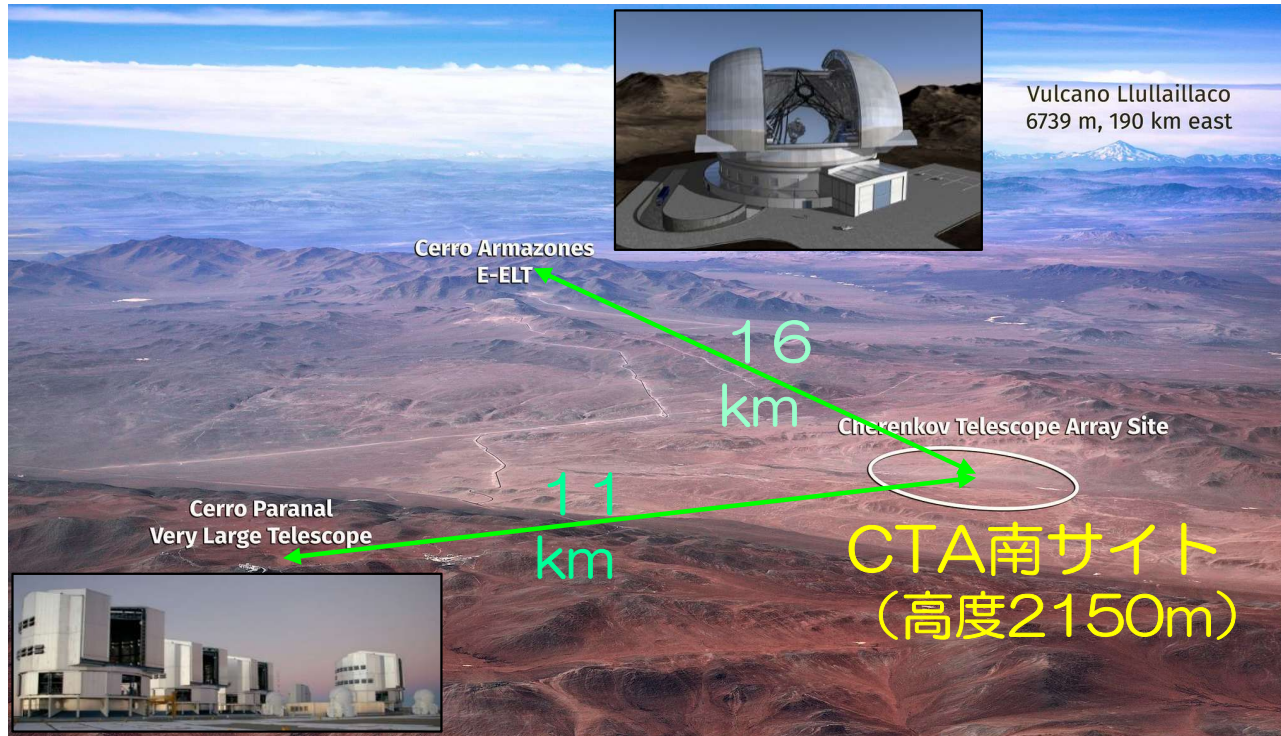
LST-4



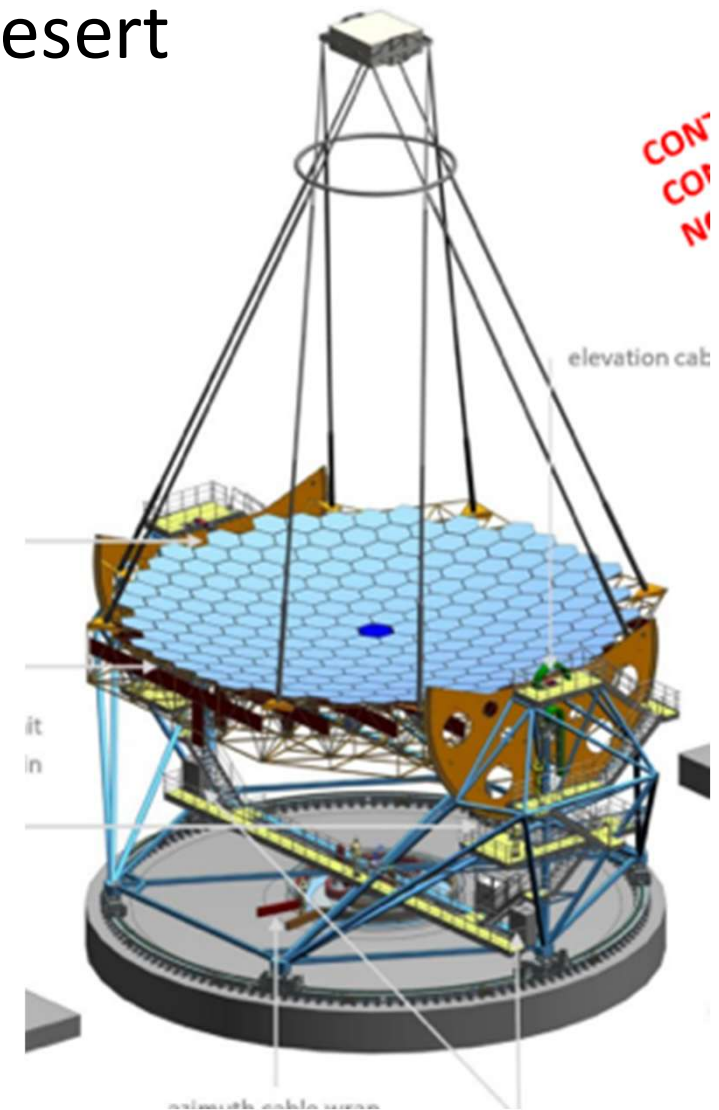
Stereoscopic Observation with
four LSTs and two MAGICs will be
realized in 2026.



South Site : : Paranal in the Atacama Desert



2 LSTs, 15 MSTs
and 37+5 SSTs
will be constructed.

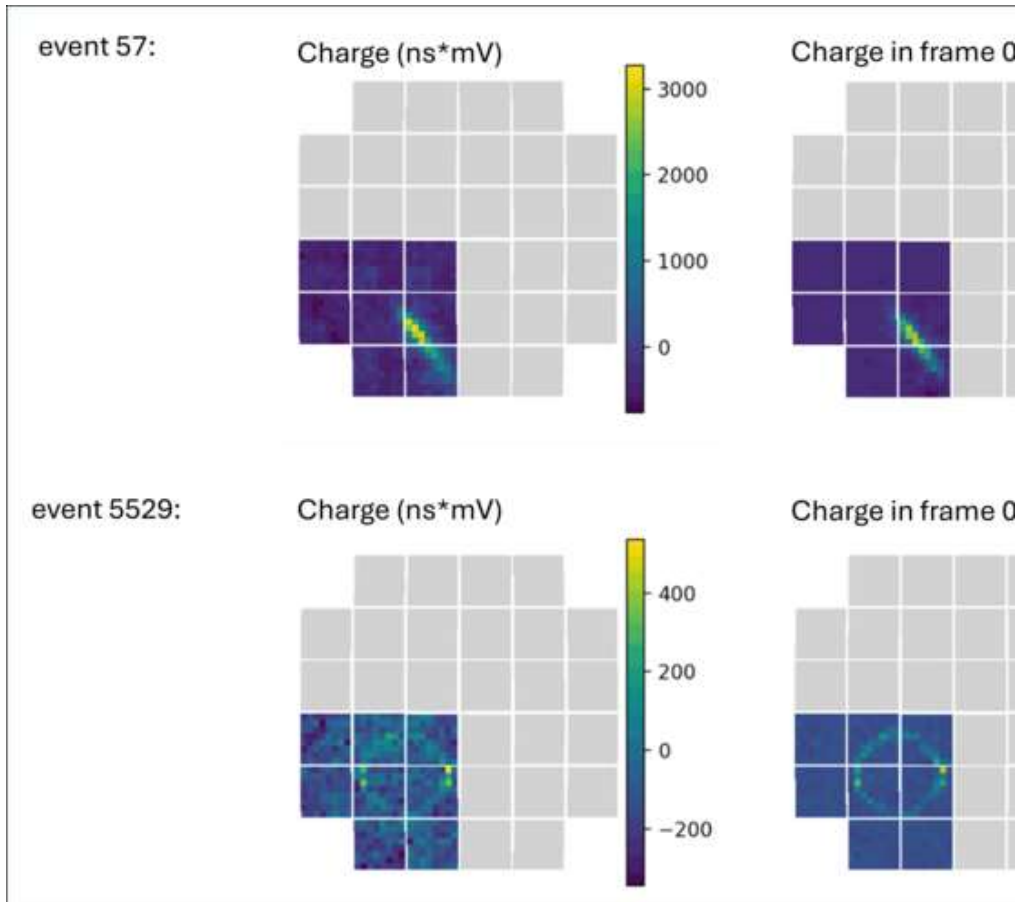


Production for 2 LSTs
elements underway.

- Road and power lines will be ready by 2026.
- Foundation of 2 MSTs and 5 SSTs by January 2026.

SSTs for south are ready to ship

[First Light for SST Camera Prototype on the ASTRI Mini-Array: Max-Planck-Institut für Kernphysik](#)



Test observation at Tenerife in Canaria Island in July 2025.

LST-1 operation continue

ATel On

Patreon
Mastodon
X

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29 Aug 2025; 07:30 UT

This space for free for your conference.

VIII Workshop on Robotic Autonomous Observatories

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First detection of flaring very-high-energy gamma-ray emission from PKS 1725+123 with the MAGIC and LST-1 telescopes

ATel #17344; *David Paneque (Max Planck Institute for Physics), Masahiro Teshima (Max Planck Institute for Physics), Ryuji Takeishi (Institute for Cosmic Ray Research, University of Tokyo), Seiya Nozaki (Institute for Cosmic Ray Research, University of Tokyo), Mathilde Croisssonier (IFAE Barcelona), Yusuke Suda (Hiroshima University), Axel Arbet-Engels (Max Planck Institute for Physics) and Jorge Otero Santos (INFN Padova) on behalf of the MAGIC and LST CTAO collaborations*
on 19 Aug 2025; 21:31 UT
Credential Certification: Axel Arbet-Engels (aarbet@mpp.mpg.de)

Subjects: Gamma Ray, TeV, VHE, AGN, Blazar

Referred to by ATel #: 17345, 17346, 17356

✕ Post

The MAGIC and CTAO LST Collaborations report the first detection of very-high-energy (VHE; $E > 100$ GeV) gamma-ray emission from PKS 1725+123 (R.A. 262.02938 deg, Dec. 12.26097 deg, J2000.0). The preliminary analysis of the MAGIC data taken on the night of 2025/08/18 to 2025/08/19 resulted in the detection of PKS 1725+123 with a statistical significance of more than 5 standard deviations after about 2 hours of observations. The LST-1 telescope observed simultaneously, and a preliminary analysis of the LST-1 data further reveals a detection at the level of 5 standard deviations.

Related

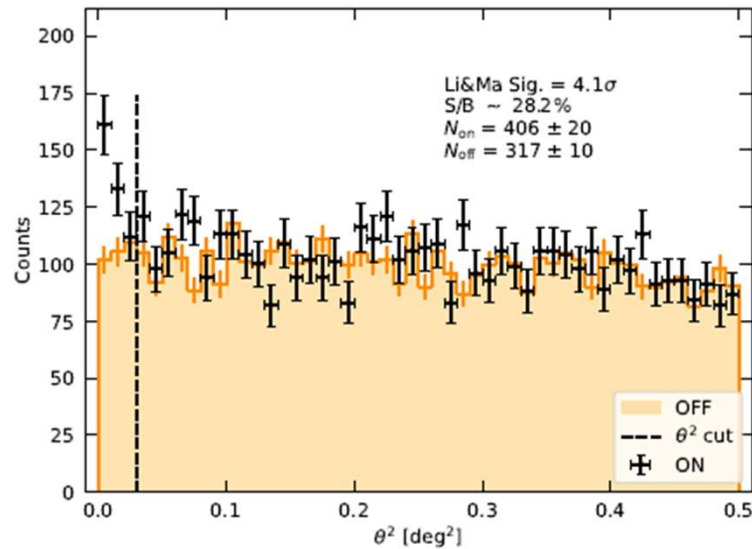
- 17356 High-Frequency Radio Flaring of the FSRQ PKS 1725+123
- 17346 Detection of very-high-energy gamma-ray emission from the FSRQ PKS 1725+123 with H.E.S.S.
- 17345 Historical optical light maximum of the FSRQ PKS 1725+123
- 17344 First detection of flaring very-high-energy gamma-ray emission from PKS 1725+123 with the MAGIC and LST-1 telescopes
- 17316 Fermi-LAT detection of renewed gamma-ray activity from the FSRQ PKS 1725+123
- 17127 Historical NIR light maximum of the FSRQ PKS 1725+123
- 17094 Fermi-LAT detection of enhanced gamma-ray activity from the FSRQ PKS 1725+123 and the unassociated gamma-ray source 4FGL J0406.2+0639
- 6240 A Recent NIR Flare of the QSO PKS1725+123
- 4201 NIR brightening of the QSO PKS1725+123

More than 2800 hours data has been accumulated. 30% with MAGIC.

On August 19th, an ATEL alert #17344 was posted.

Signal from FSRQ PKS 1725+123 ($z=0.586$) had been detected with more than 5 sigma significance by both of MAGIC and LST-1.

Brightest of All Time (BOAT) GRB 221009A: Observations with LST-1 accepted in ApJL 988 L42 (2025)



Press release <https://www.icrr.u-tokyo.ac.jp/news/16737/>

First GRB detection with LST.

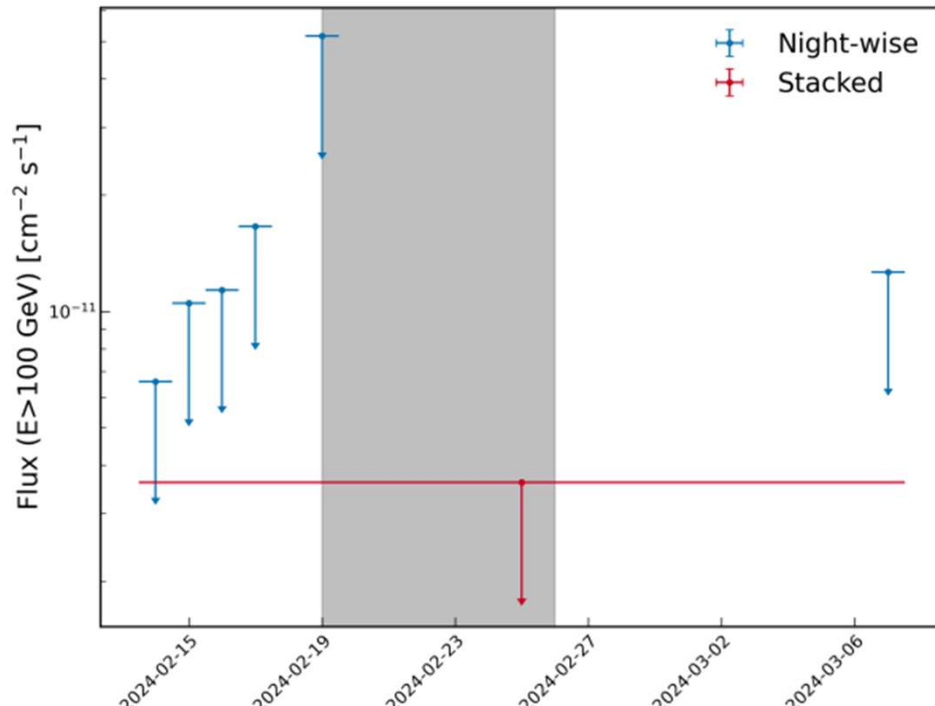
Constrain TeV gamma-ray emission of SN 2024bch

Accepted in A&A

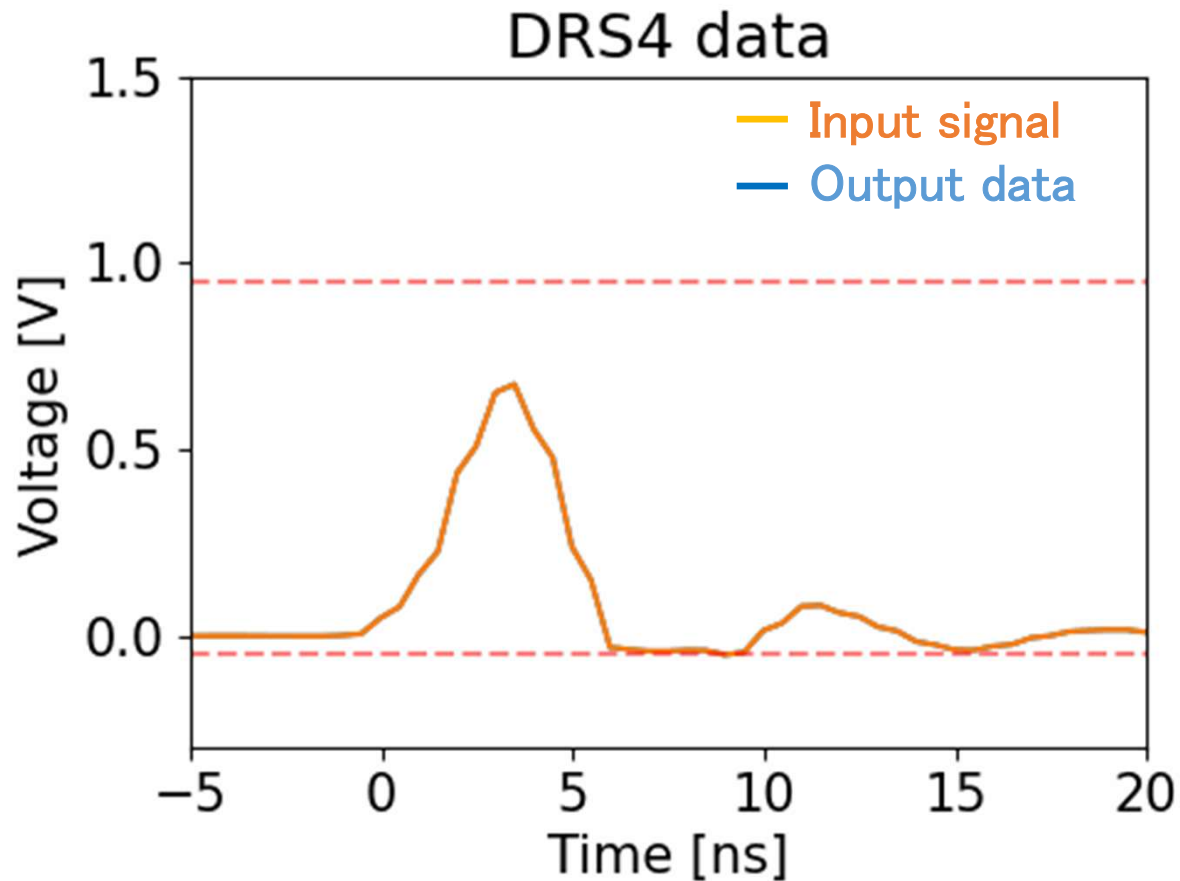
Type IIn-L supernova on Jan 29th, 2024,
20 Mpc away.

Gamma-rays emissions may rise 10-100 days after
the explosion, when internal absorption becomes
weak.

LST1 observed it for 6 nights at 20-40 days later. No
emission found above 100 GeV.

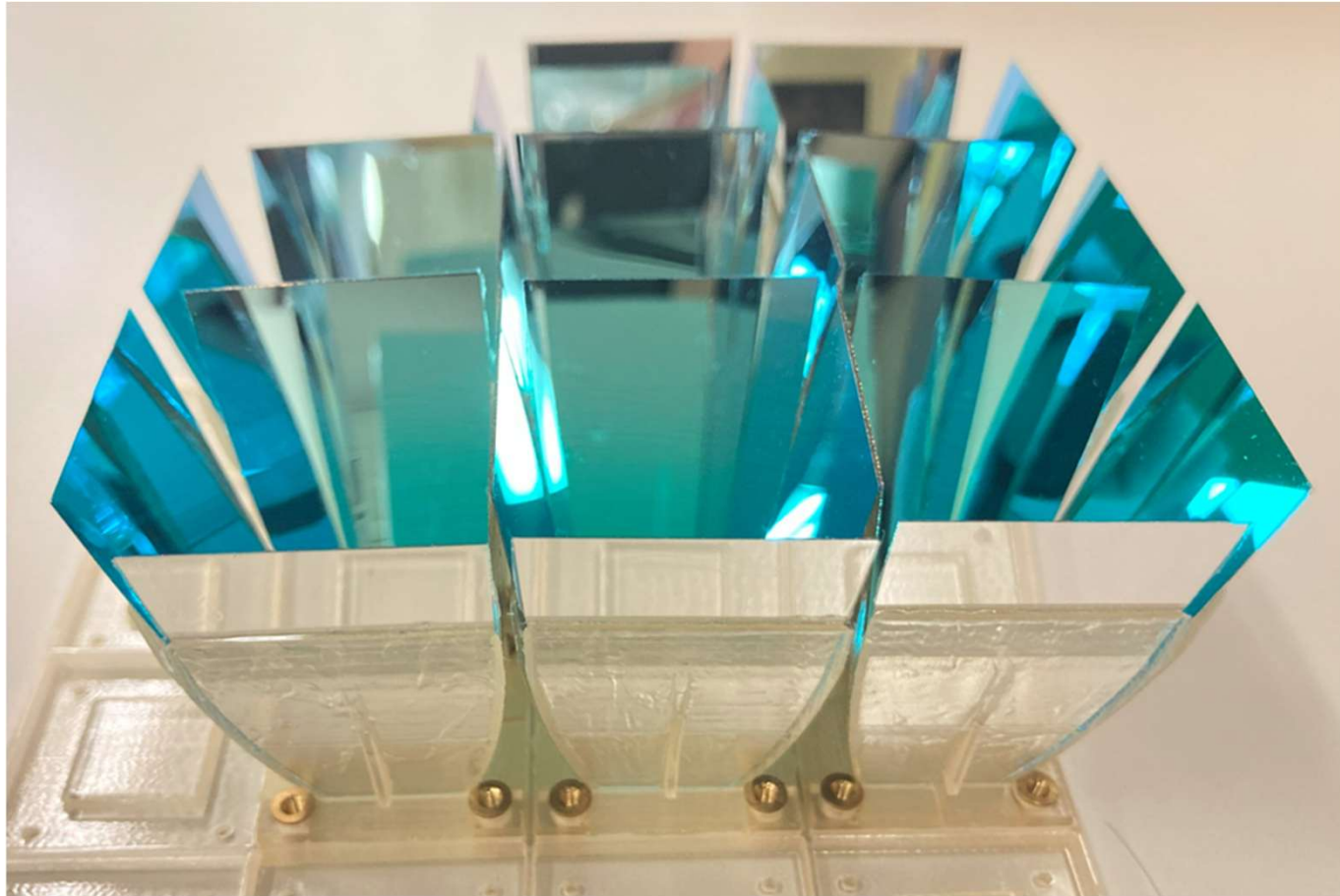


CTAO Report 245: saturated pulse analysis **Seiya Nozaki**

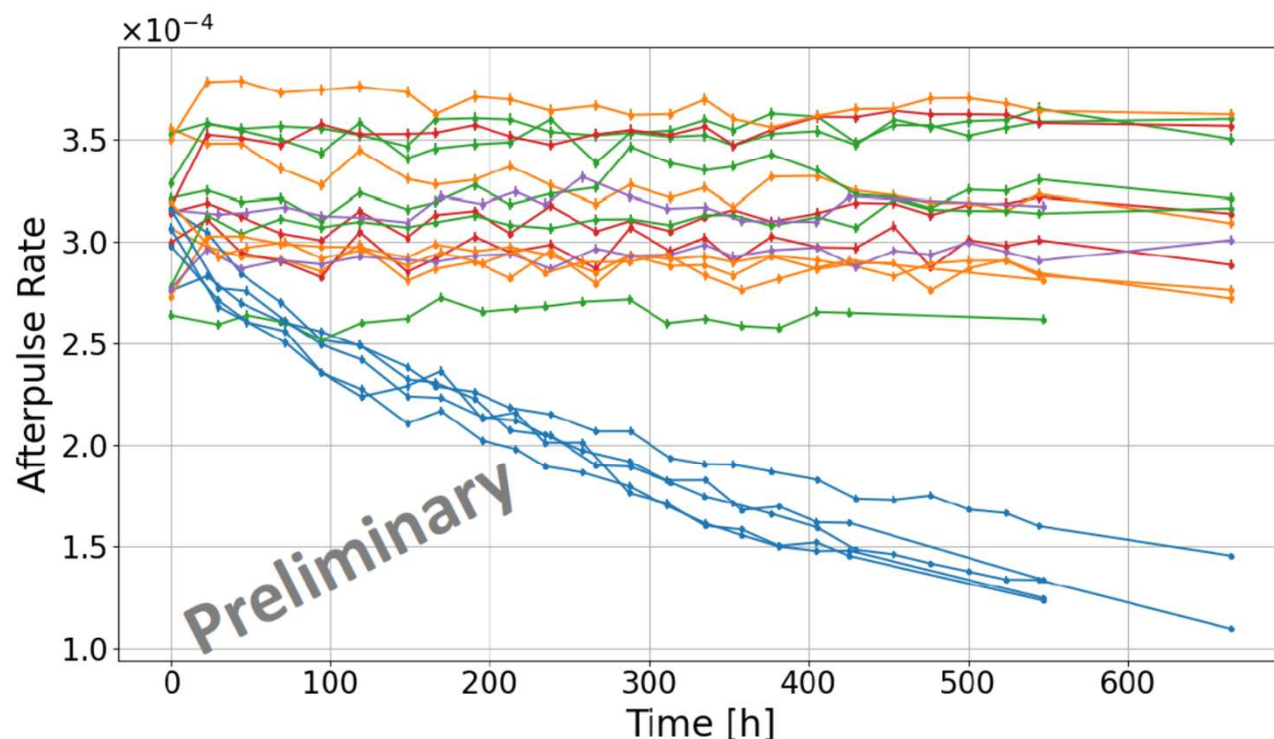


Analysis of large Cherenkov light signals is important for direct Cherenkov light and higher energy gamma-ray analysis. Therefore, we are developing a method to estimate the signal intensity from saturated pulses.

CTAO Report 246: light guide for the SiPM **Masaya Mizote**



結果 2 アフターパルス発生確率の時間変化



PMTの条件

	LED	HV [V]
group1	ON	1100
group2	ON	750
group3	ON	0
group4	OFF	1100
group5	OFF	0

PMTの平均ゲイン

1100 V : $\sim 2.7 \times 10^4$

750 V : $\sim 2.3 \times 10^3$

- LED **ON**, HV **1100 V** のPMTのみ明らかに減少（初期値の約半分）
→APの減少には光電面への光の照射とHVの両方が必要

CTAO Report 247: After pulse Reduction in PMTKai Morita

CTA session

CTAO Report 239: Geminga pulser **Paul K. H. Yeung**

CTAO Report 240: 1LHAASO J0056-6456 **Marcel Strzys**

CTAO Report 241: Dark Matter Search in the GC

Shotaro Abe

CTAO Report 242: AGNs

Ryuji Takeishi

CTAO Report 244: TeV iron cosmic ray measurement

Masakaze Mizuno

CTAO Report 245: saturated pulse analysis **Seiya Nozaki**

CTAO Report 246: light guide for the SiPM **Masaya Mizote**

CTAO Report 247: After pulse Reduction in PMT **Kai Morita**