

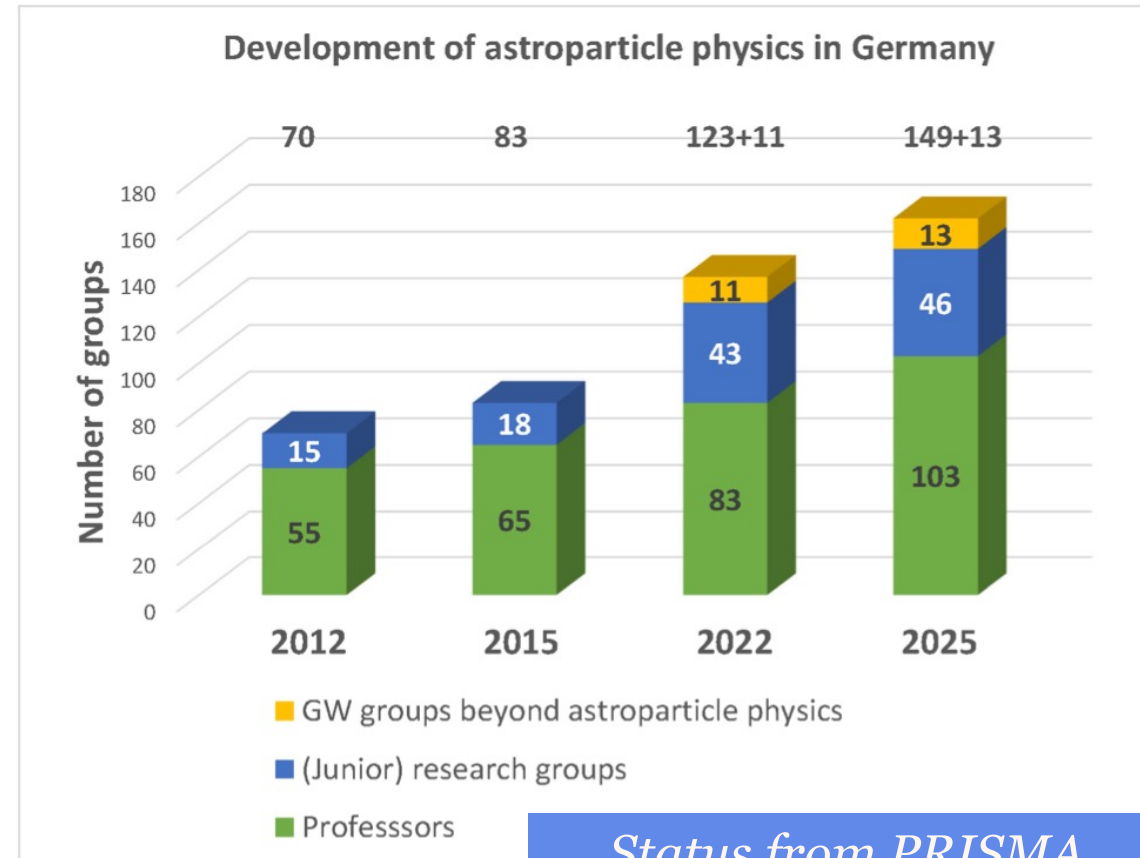
Komitee für Astroteilchenphysik (KAT) report to KHuK

*KHuK Jahrestagung
Bad Honnef, 12.12.2025*



Daniel Bemmerer
Helmholtz-Zentrum Dresden-Rossendorf

KAT constituency: astroparticle physics groups



Status from PRISMA
strategy talk,
May 2025

students

Komitee für Astroteilchenphysik, members, 2025-2028

Constituency (order from KAT guidelines)	Elected representative	Deputy representative
Dark Matter	Belina von Krosigk	Marc Schumann
Neutrino Properties	Kathrin Valerius (Chair)	Josef Jochum
Low-Energy ν Astrophysics	Michael Wurm (Dep. Chair)	Caren Hagner
Cosmic Rays	Markus Roth	Julian Rautenberg
Gamma-Ray Astronomy	Dominik Elsässer	Alison Mitchell
High-Energy ν Astrophysics	Anna Franckowiak	Marek Kowalski
Gravitational Waves	Michèle Heurs	Oliver Gerberding
Nuclear Astrophysics	Uwe Oberlack	Daniel Bemmerer
Theory	Walter Winter	Joachim Kopp

Forschungsinfrastrukturen (FIS) Prioritization Process

- Call by BMFTR came out in Summer 2024, submission date end of October 2024
- Threshold: 50 M€ planned German invest contribution
- Fall 2024: 32 proposals passed formal admission to review (total request: ~8.5 G€)
- **All four astroparticle physics proposals** were among the **11 recommendations** of the Wissenschaftsrat for the scientific evaluation

→ [Link to full report](#) of Wissenschaftsrat, released November 2025

- For short list: Separate evaluation in two more dimensions: **costs & risks**, and **innovation & transfer potential**

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**11 ex-aequo
recommen-
dations
(no ranking)**

FIS Prioritization Process

- **Shortlist with 9 prioritized projects** was released in July 2025
- Very favourable for astroparticle physics with **3 projects**:
IceCube-Gen2 LEGEND-1000 ET preparation project

Forschungsinfrastruktur (FIS)

Priorisierungsverfahren

- C** **CREATION**, Medizinische Hochschule Hannover, Universitätsmedizin Göttingen, Universitätsklinikum Leipzig, Fraunhofer-Institut für Zelltherapie und Immunologie (Leipzig/Potsdam-Golm/Halle (Saale)/Rostock/Würzburg)
- D** **DALI**, Helmholtz-Zentrum Dresden-Rossendorf e.V.
- E** **Vorphase für das Einstein-Teleskop**, RWTH Aachen, Universität Münster, Ruhr-Universität Bochum, Technische Universität Dresden
- H** **HBS-I**, Forschungszentrum Jülich, Helmholtz-Zentrum Hereon (Geesthacht)
- I** **IceCube-Gen2**, Deutsches Elektronen-Synchrotron (Hamburg/Zeuthen), Karlsruher Institut für Technologie
- L** **LEGEND-1000**, Max-Planck-Institut für Kernphysik (Heidelberg), Technische Universität München
- P** **PETRA IV**, Deutsches Elektronen-Synchrotron (Hamburg)
- R** **RIDLOP**, GESIS - Leibniz-Institut für Sozialwissenschaften (Köln/Mannheim)
- S** **SLICES-DE**, Technische Universität München



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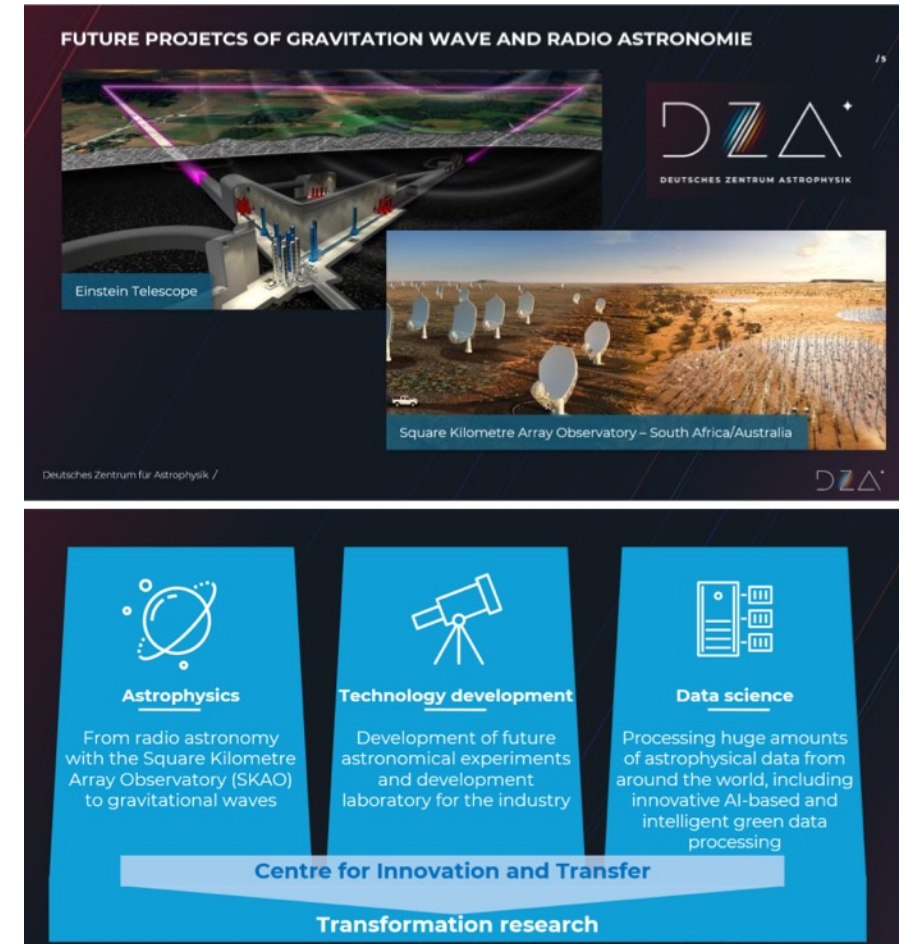
<https://www.bmftr.bund.de/DE/Forschung/Wissenschaftssystem/Forschungsinfrastrukturen/Priorisierungsverfahren/priorisierungsverfahren.html>
 12.12.2025 Daniel Benninger: KAT report

- All 9 are directly contacted by BMFTR
- Wissenschaftsrat now organizes accompanying evaluation with on-site visits with the aim of making a funding recommendation

News from DZA (Deutsches Zentrum für Astrophysik)

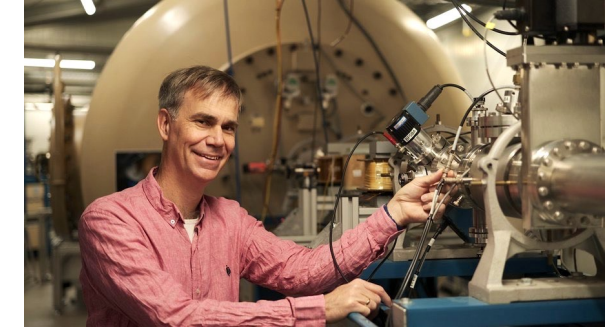
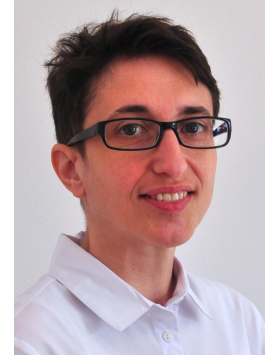
- DZA underwent a status review in Summer 2025
- gGmbH founded (launching end of 2025)
→ [24/11/2025: Press information by BMFTR](#)
- 90% / 10% financing model
Federal Government / State of Saxony
- Currently 110 employees (November 2025)
→ Gradual staff expansion to around 1,000 positions by 2038
- DZA hosted three big conferences in 2025:
SKAO, AG-Tagung and ADASS

Mission: Germany's national research center for astrophysics: to conduct world-class research, drive digitalisation and innovation, support regional transformation after the lignite coal phase-out.

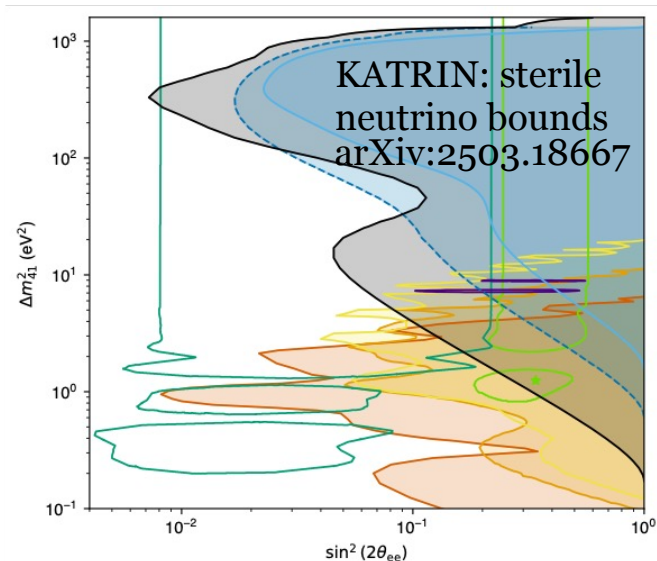


Prizes and Awards in 2025

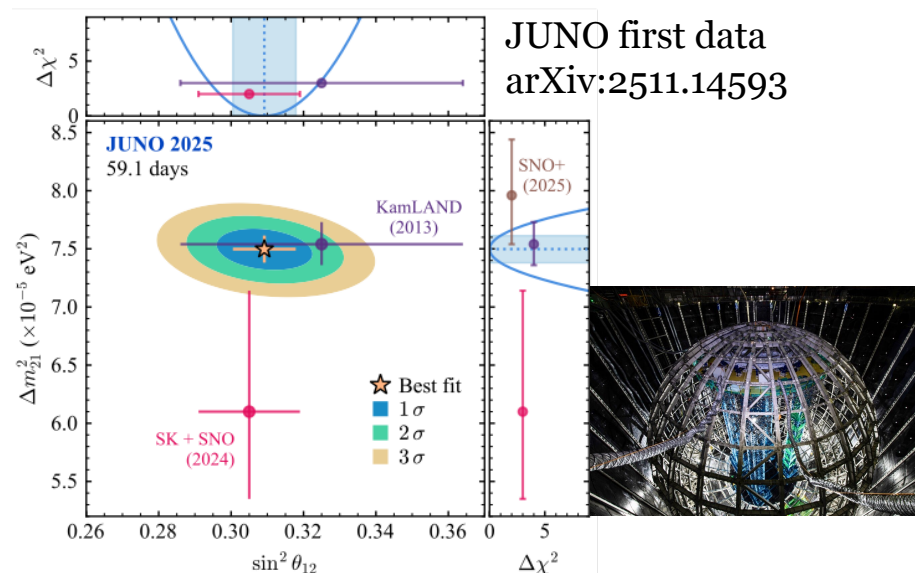
- Loredana Gastaldo (U Heidelberg):
ERC Advanced Grant „ECHO-LE“
- Michela Mapelli (U Heidelberg):
ERC Advanced Grant „IMBlack“
- Daniel Bemmerer (HZDR & TU Dresden) & colleagues:
ERC Synergy Grant „LUNANOVA“
- Julien Lesgourgues (RWTH Aachen) & colleagues:
ERC Synergy Grant „RedHOT“
- Martin Fertl (Uni Mainz):
ERC Consolidator Grant „NuLife“
- Stefan Schoppmann (Uni Mainz):
ERC Consolidator Grant „NuDoubt“
- Karoline Schöffner (MPP/TUM):
ERC Consolidator Grant „PIRATES“



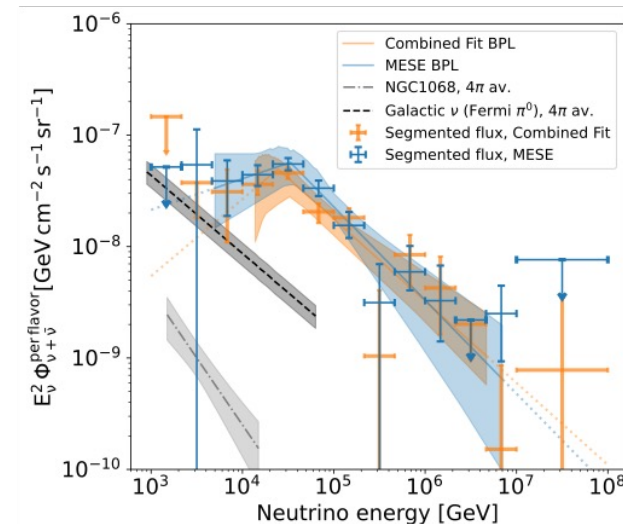
News from astroparticle physics projects in 2025



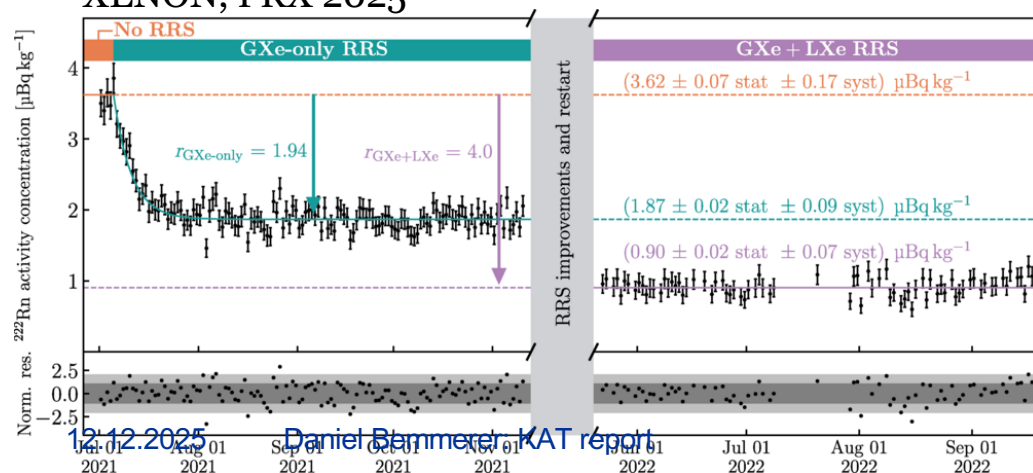
$m(\nu) < 0.45$ eV, Science 388 (2025)



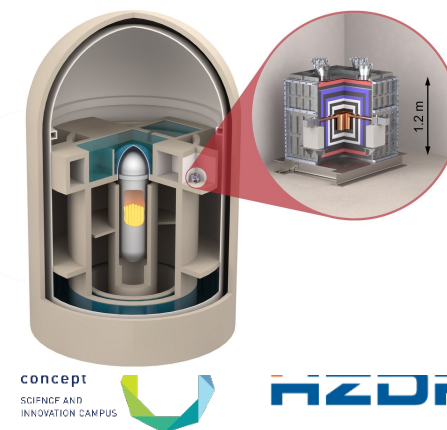
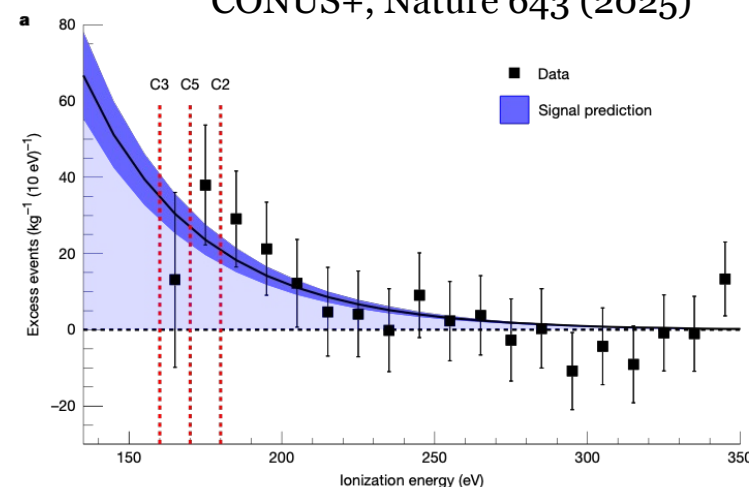
IceCube: spectral break?
arXiv:2507.22233



XENON, PRX 2025



CONUS+, Nature 643 (2025)



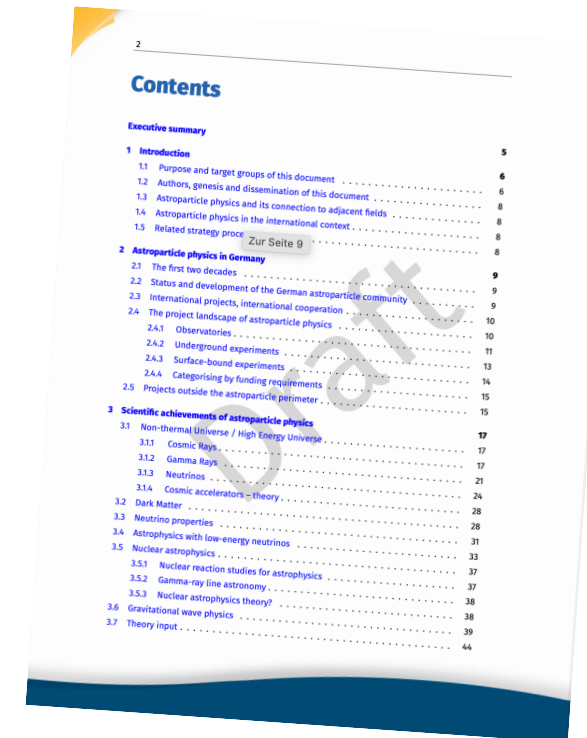
Status of the KAT Decadal Strategy Paper

- 2024/25: Workshops and writing phase → first draft May 2025

Contents: 1) Introduction -- 2) Astroparticle physics in Germany -- 3) Scientific achievements of astroparticle physics -- 4) Plans and challenges for the next decade -- 5) APP and society -- 6) Recommendations

Appendix: Project fact sheets (1 page/project, currently 39 projects)

- In parallel: astroparticle community census (completed; new groups joining receive the questionnaire)
- 2025: Started consolidation phase (Editorial Team: U. Katz, K. Valerius, Ch. Stegmann, Th. Schwetz)
- Process got **interrupted** by US elections, DE elections, FIS Roadmap, ...
- Plan to **resume** at 2025 Bad Honnef meeting!
- Realistic timeline: Summer 2026??



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Was bisher geschah:

*New **federal ministry** (new configuration!),
new **FIS Roadmap**, new **HighTech Agenda** (!),
ESPPU Physics Book, **APPEC Roadmap** ...*

APPEC Roadmap 2027-2036



www.appec.org

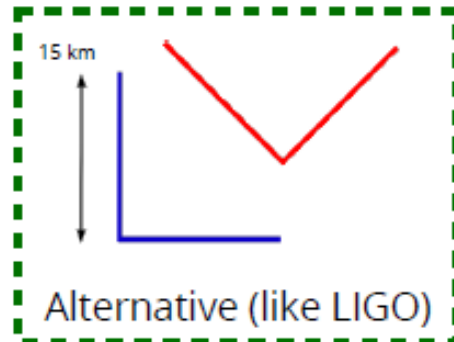
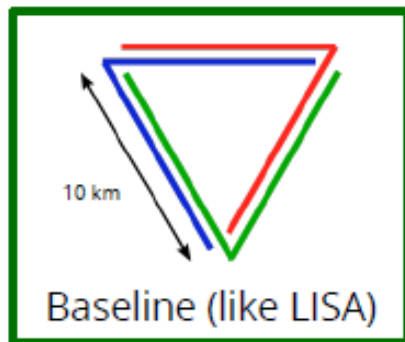


- June 2024: new SAC installed, in charge for the science of the new roadmap
- Dec 2024: new APPEC chair: Carlos Pena Garay (Canfranc): chair; Julie Epas (APC): secretary
- Community survey and input requests early 2025
- Town meeting Sept 2025 (<https://indico.cern.ch/event/1516919/overview>)
- Roadmap preparation
- Town meeting Sept 2026
- Presentation of the Decadal Roadmap foreseen for Dec 2026

slide courtesy
A. Haungs

Einstein Telescope project – site and configuration (L or triangle)

- Sardinia site, close to the Sos Enattos mine
 - Site engineering for both options with an underground L as prioritised Italian option
 - Meuse-Rhine Euroregion site, close to the NL-B-D border
 - Site engineering based on Triangle option as priority
 - The Lusatia site in D close to CZ and PL border
 - Official Site candidate, site engineering supported by Saxony
- ➔ Detailed site engineering is necessary to obtain a reliable cost estimate for a serious infrastructure bid.
- ➔ Dedicated R&D is needed to optimize the instrument in either configuration.



slide courtesy
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Summary, KAT Report to KHuK Meeting

- ◆ Three KAT projects received favorable results in BMFTR FIS (Forschungsinfrastruktur, research infrastructures) prioritization process: LEGEND, IceCube-2, ET preparatory phase
- ◆ KAT scientists are successful in ERC grants, showing the relevance of astroparticle physics
- ◆ DZA German Center for Astrophysics now founded as independent entity, will grow to 1000 employees by 2038
- ◆ German KAT roadmap process has stalled, relaunch expected for 2026
- ◆ European APPEC roadmap process underway, completion expected 2026
- ◆ Einstein Telescope site and configuration decisions to complete rather soon
- ◆ **KAT+RdS call deadline passed on 01.12.2025, funding period 01.07.2026 – 30.06.2029**