



Astroparticle Physics European Consortium

General Assembly 29 February 2024

report from GA chair

Topics addressed in chair's report:

- New representatives/members
- Feedback Roadmap Event in Brussels
- P5-HEPAP
- JENA Activities

main topics today:

- New EuCAPT chair
- Report JS
- Gravitational Waves
- New SAC
- ACME
- Horizon Europe

GA membership



- **UK (STFC):**
 - Jamie Parkin is a proxy for Helen Beadman
- **Sweden (VR):**
 - Alexander Burgman has replaced Matthias Marklund
- **Observer ASTRONET:**
 - Colin Vincent retired – successor of ASTRONET chair not yet known
- **Observer ECFA:**
 - Paris Sphicas has replaced Karl Jakobs as chair of ECFA
- **Chair of APPEC SAC | EuCAPT Director**
 - Sijbrand de Jong needs to be replaced
 - Silvia Pascoli replaces Gianfranco Bertone
- **Denmark:**
 - Jason Koskinen is now as guest participating
- **Norway:**
 - contacts with the Norwegian astroparticle physics community via Foteini Oikonomou (NTNU)

The future of Astroparticle Physics in Europe



Presentation of the European Astroparticle Physics Strategy Mid-Term Update

7/12/2023 14-18:00

<https://indico.cern.ch/event/1339060/>



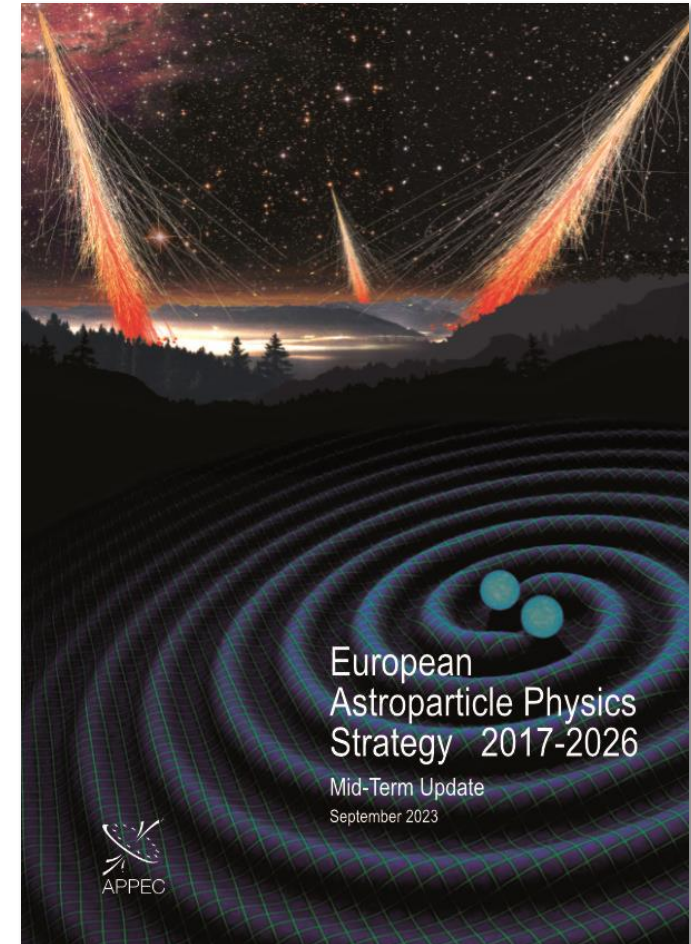
Roadmap Midterm Update

Still printed versions available!

Please send request per Email to

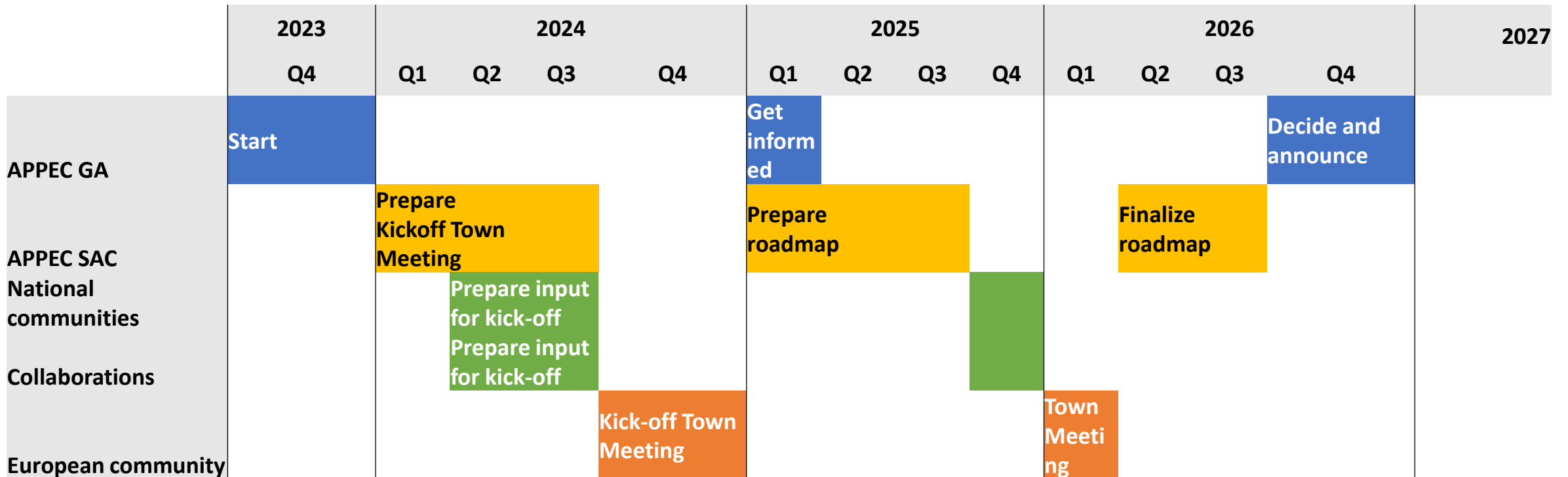
Sabine.Bucher@KIT.edu

And add the full delivery address!



APPEC roadmap 2027-2036

- APPEC roadmap 2027-2036; Tentative timeline for next roadmap
- ➔ Discussion together with SAC (see later in agenda of today)



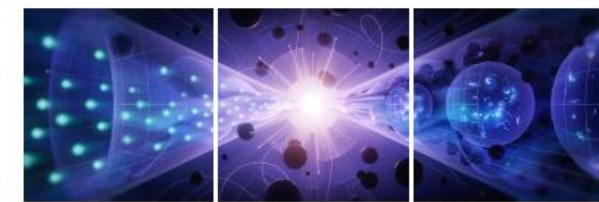
P5-HEPAP

We recommend the following:

As the highest priority independent of the budget scenarios, complete construction projects and support operations of ongoing experiments and research to enable maximum science. This includes HL-LHC, the first phase of DUNE and PIP-II, the Rubin Observatory to carry out the Legacy Survey of Space and Time (LSST), and the LSST Dark Energy Science Collaboration.

Construct a portfolio of major projects that collectively study nearly all fundamental constituents of our universe and their interactions, as well as how those interactions determine both the cosmic past and future.

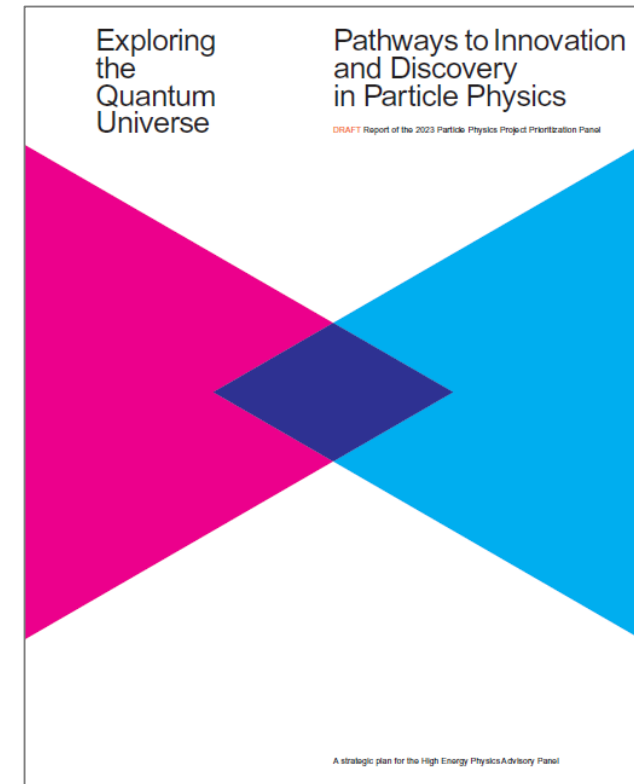
1. **CMB-S4**, which looks back at the earliest moments of the universe,
2. **Re-envisioned second phase of DUNE** with an early implementation of an enhanced 2.1 MW beam as the definitive long-baseline neutrino oscillation experiment,
3. **Offshore Higgs factory, realized in collaboration with international partners**, in order to reveal the secrets of the Higgs boson,
4. **Ultimate Generation 3 (G3) dark matter direct detection experiment** reaching the neutrino fog,
5. **IceCube-Gen2** for the study of neutrino properties using non-beam neutrinos complementary to DUNE and for indirect detection of dark matter.



Decipher the Quantum Realm
Elucidate the Mysteries of Neutrinos
Reveal the Secrets of the Higgs Boson

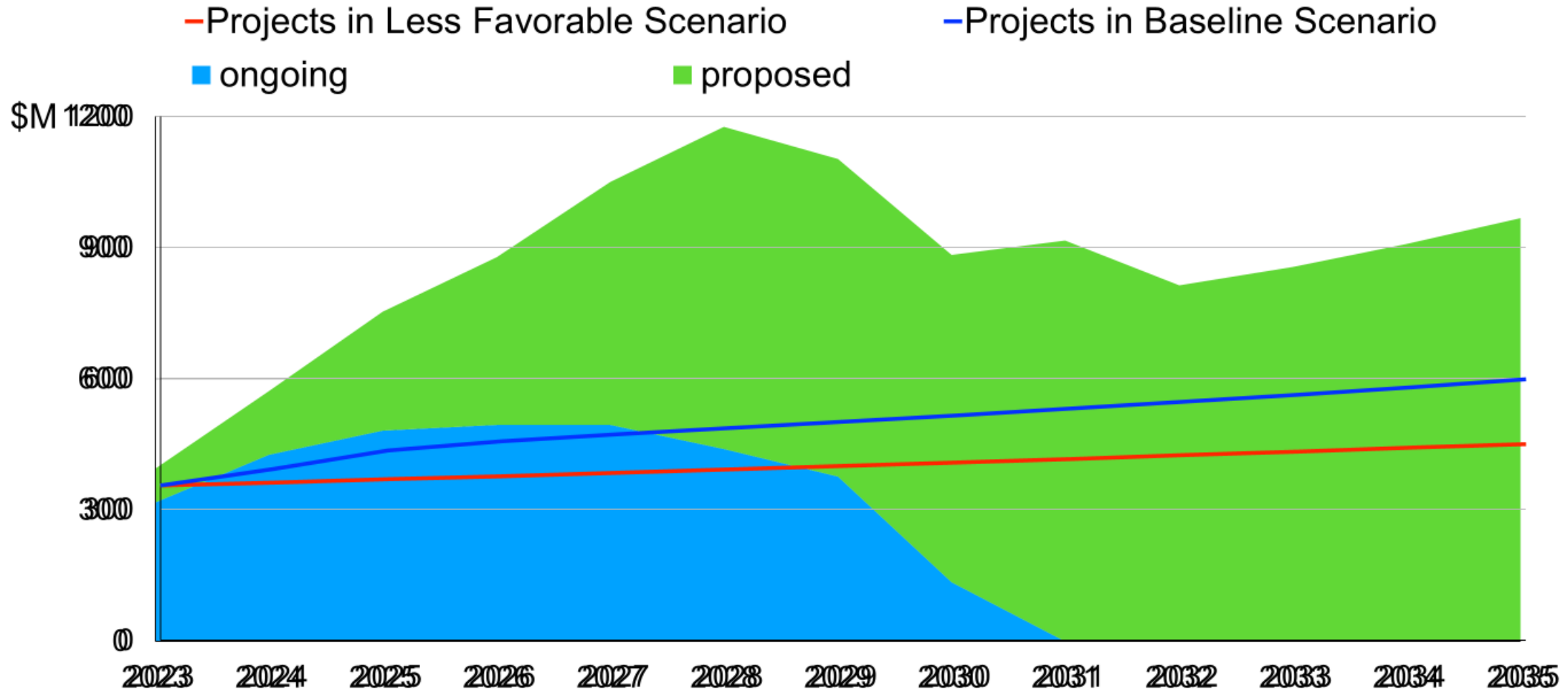
Explore New Paradigms in Physics
Search for Direct Evidence of New Particles
Pursue Quantum Imprints of New Phenomena

Illuminate the Hidden Universe
Determine the Nature of Dark Matter
Understand What Drives Cosmic Evolution





Budget Scenarios and Projects



not including on-shore Higgs factory

DOE only

JENA Computing



- JENA Computing Workshop in Bologna: 12-14 June 2023
- <https://agenda.infn.it/event/34738/>
- Motivation: JENAS 2022 → There is a need for a European Workshop on (federated) Computing! → Preparation for JENAS 2025
- 60-70 participants plus up to 25 online
- Topics are all aspects of (federated) computing by talks, round table discussions, initiation of JENA working group, ...
- Covering computing, HPC vs. HTC, software, data management, open data, sustainability

JENA Computing Workshop


12 Jun 2023, 12:00 → 14 Jun 2023, 18:00 Europe/Rome
Auditorium Biagi (Biblioteca Salaborsa)
Andreas Haungs (Karlsruhe Institute of Technology) , Claudio Grandi (Istituto Nazionale di Fisica Nucleare) , Luca Dell'Agnello (Istituto Nazionale di Fisica Nucleare)

Description

ECFA European Committee for Future Accelerators | NuPECC | APPEC

JENAA Joint ECFA-NuPECC-APPEC Activities

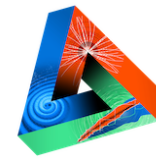
To be held as in-person meeting in Bologna, Italy.



Motivation

At the Joint ECFA-NuPECC-APPEC (JENA) Seminar in May 2022 in Madrid (<https://indico.cern.ch/event/1040535/>), both the plenary presentations and the closed session of funding agency representatives revealed that there is an increased need for discussions on the strategy and implementation of European federated computing at future large-scale research facilities.

JENA Computing



JENAA

Joint ECFA-NuPECC-APPEC Activities



• Results:

Target: European white paper on (ENA) computing as input for the next JENA Symposium

Dedicated working groups (to look deeper) on five areas:

- HPC:
https://indico.scc.kit.edu/e/JENA_computing_wp1/
- Software:
https://indico.scc.kit.edu/e/JENA_computing_wp2/
- Data Management:
https://indico.scc.kit.edu/e/JENA_computing_wp3/
- ML & AI:
https://indico.scc.kit.edu/e/JENA_computing_wp4/
- Training:
https://indico.scc.kit.edu/e/JENA_computing_wp5/

• Next:

- Working groups have started activities...
- Still searching for participation in the working groups from Astroparticle Physics

➔ More engagement from APP requested!



Expression of Interests (EoI)

<http://www.nupecc.org/jenaa/?display=eois>

1. Dark Matter - iDMEu (<https://indico.cern.ch/event/869195/overview>)
 2. Gravitational Waves for fundamental physics (<https://agenda.infn.it/event/22947/overview>)
Workshop 12-16 February in Rome: <https://agenda.infn.it/event/37487/>
 3. Machine-Learning Optimized Design of Experiments - MODE (<https://mode-collaboration.github.io>)
 4. Nuclear Physics at the LHC (<https://indico.ph.tum.de/event/4492/>)
 5. EDM - Search of Charged-Particle Electric Dipole Moments (<https://indico.ph.tum.de/event/4482/>)
 6. Synergies of EIC with LHC - EIC; kick-off happened in June 2022
<https://indico.ph.tum.de/event/7004/>
 7. **New:** EuCAIF – European Coalition for AI in Fundamental physics
 - **New EoI approved in Nov 2023: EuCAIF (machine learning as analysis tools)**
 - **Kickoff EuCAIF: 30/4-3/5 2024 Amsterdam** <https://indico.nikhef.nl/event/4875/>
- ➔ **Nomination for expert panels from APP side?!**

JENA Expressions of Interest



<http://www.nupecc.org/jenaa/?display=eois>

List of submitted Eoi:

1. Dark Matter - iDMEu (<https://indico.cern.ch/event/869195/overview>)
2. Gravitational Waves for fundamental physics (<https://agenda.infn.it/event/22947/overview>)
3. Machine-Learning Optimized Design of Experiments - MODE (<https://mode-collaboration.github.io/#home>)
4. Nuclear Physics at the LHC (<https://indico.ph.tum.de/event/4492/>)
5. Storage Rings for the Search of Charged-Particle Electric Dipole Moments (EDM) (<https://indico.ph.tum.de/event/4482/overview>)
6. Synergies between the Electron-Ion Collider and the Large Hadron Collider experiments (<https://indico.ph.tum.de/event/7004/>)
7. European Coalition for Artificial Intelligence (AI) in Fundamental Physics. (<https://www.eucaif.org/>)

Eois in the form of a brief letter are to be submitted to the chairs of the committees/consortia. In the letter you can elaborate on the synergy topic, the objectives, the initial thoughts and the potential communities involved. This letter is not the end of the process, but potentially the start of further communications on the expressed interest.

JENA Eoi Task Force representatives

For ECFA:

- Stan Bentvelsen (2) ✉
- Jana Bielčíková (6) ✉
- Sascha Caron (3) ✉
- Tuomas Lappi (6) ✉
- Isabell Melzer-Pellmann (1) ✉
- Nick van Remortel (2) ✉
- Mike Seidel (5) ✉
- Claude Vallee (1) ✉
- Mikko Voutilainen (3) ✉

For NuPECC:

- Navin Alahari (4) ✉
- Dave Ireland (6) ✉
- Eugenio Nappi (6) ✉
- Franck Sabatié (3,6) ✉
- Hans Stroehrer (5) ✉
- Eberhard Widmann (5) ✉
- György Wolf (2,4) ✉

For APPEC:

- Jo van den Brandt (2) ✉
- Jürgen Brunner (3) ✉
- Tomek Bulik (2) ✉
- Francesca Calore (1) ✉
- Elena Cuoco (3) ✉
- Fiorenza Donato (4) ✉
- Teresa Montaruli (6) ✉
- Uwe Oberlack (1) ✉
- Xin Wu (4) ✉

2024



European Astroparticle Physics Strategy 2017-2026

Mid-Term Update
September 2023

Hot topics 2024:

- Implementation issues**
- Next Roadmap 2027-2036**
- JENA symposium**