

REd NAcional T emática de Astropartículas

OBJETIVE: coordinate the activity in the field of astroparticles and facilitate scientific exchange among Spanish theoretical and experimental groups

- Established in 2006
- The network has been continuously funded by the AEI's network programs **(with some time gaps)**
- Network coordinators: José W.F. Valle (IFIC), José Ángel Villar (UZ), Sergio Pastor (IFIC), Carlos Delgado (CIEMAT), María Martínez (CAPA-UZ)
- Activities:
 - Dissemination of information (email/web site)
 - Support for conferences and schools (IMFP, TAE, ISAPP,..)
 - Coordination of astroparticles CPAN community
 - RENATA general meetings, thematic meetings, CPAN parallel sessions,...
 - Outreach
 - ...

Astroparticles in Spain

Cosmology & Dark Energy

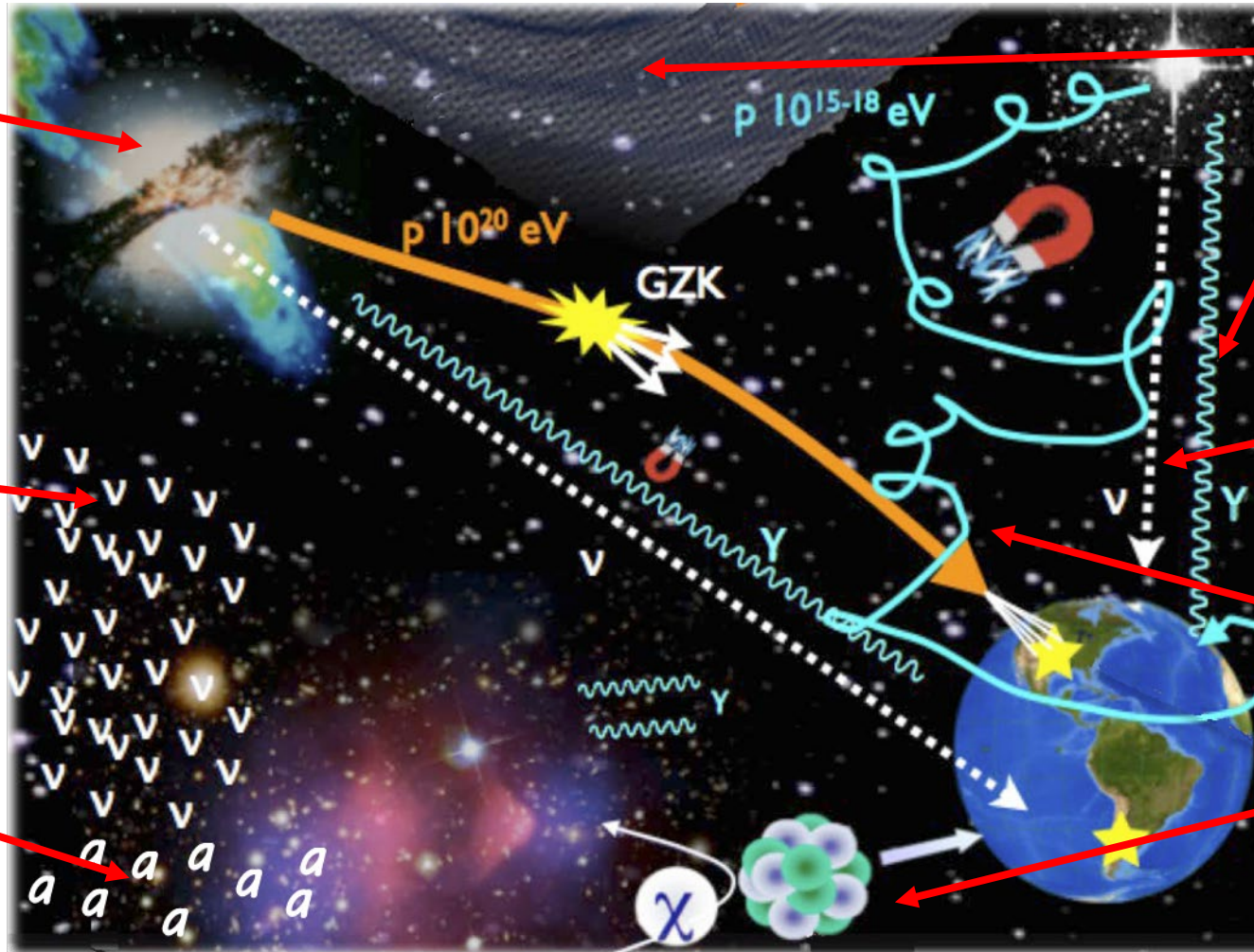
JPAS, Euclid, Quijote, DES,
PAU, DESI, Rubin/LSST,
SKA, THESEUS,...

Neutrino physics

DUNE, T2K, HK, NEXT,
ESSCEvNS,...

Axion physics

CAST, BabyIAXO, IAXO,
RADES, CADEX, ...



Gravitational Waves

VIRGO, LIGO, LISA, ET,...

Gamma-ray astronomy

MAGIC, CTAO

Neutrino astronomy

ANTARES, KM3NET

Cosmic rays

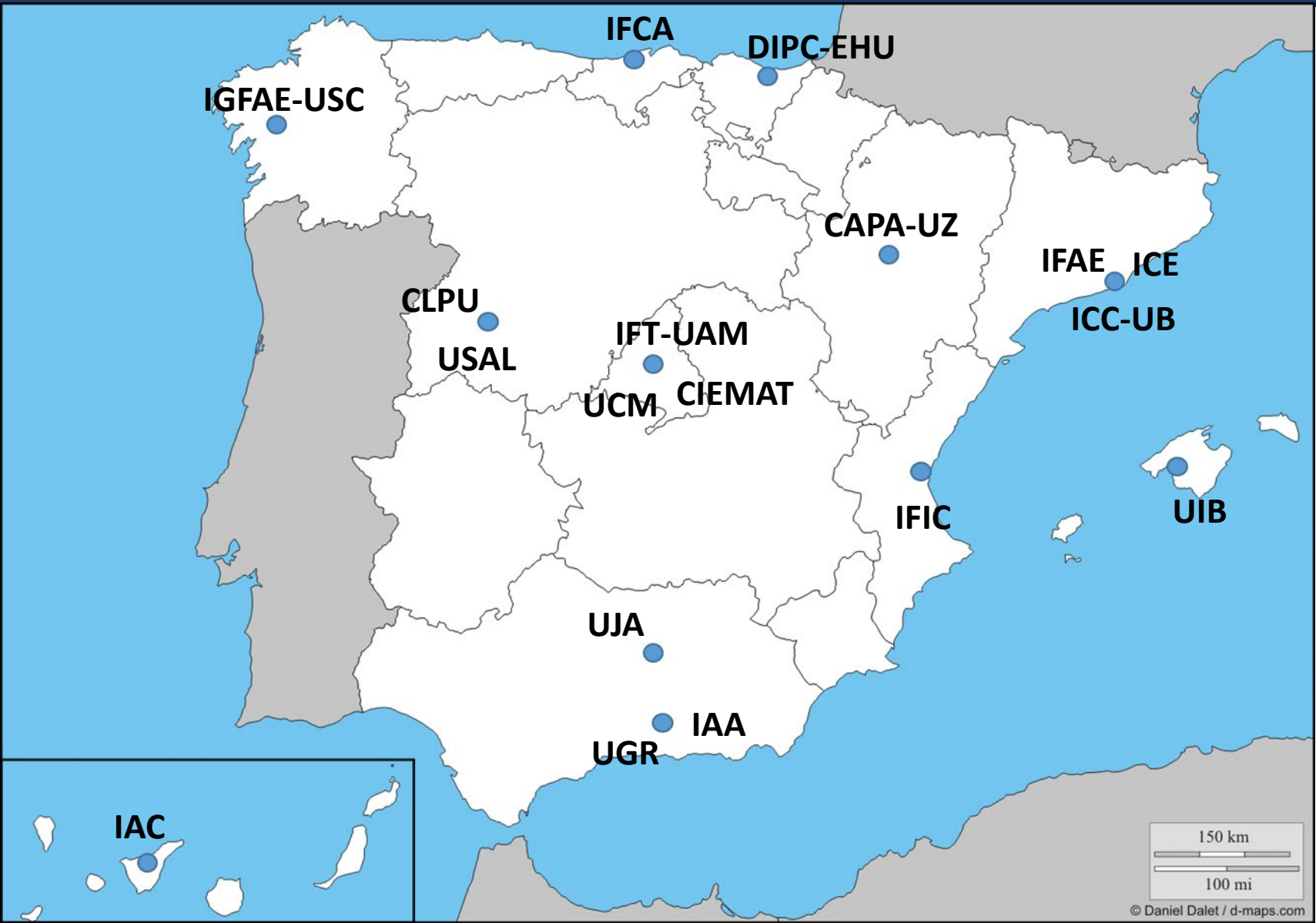
AUGER, AMS, JEM-EUSO

WIMP detection

SuperCDMS, DarkSide,
DArT, DAMIC, ANAIS,
ANAIS+, TREX,...

+ astroparticle theory & phenomenology (many groups)

RENATA Institutions



1. **Group CAPA-UZ.** PI: María Martínez Pérez, Centro de Astropartículas y Física de Altas Energías (Universidad de Zaragoza)
2. **Group IFAE.** PI: Oscar Blanch Bigas, Institut de Física d'Altes Energies
3. **Group IGFAE-USC.** PI: Jaime Álvarez-Muñiz, Instituto Galego de Física de Altas Enerxías (Univ. de Santiago de Compostela)
4. **Group UCM.** PI: Antonio López Maroto, Universidad Complutense de Madrid
5. **Group CIEMAT.** PI: Tarek Hassan Collado, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas
6. **Group UGR.** PI: Manuel Masip Mellado, Universidad de Granada
7. **Group IFIC.** PI: Pau Novella Garijo, Instituto de Física Corpuscular (CSIC-Universitat de València)
8. **Group UIB.** PI: Marta Colleoni, Universitat de les illes Balears
9. **Group IFCA.** PI: Bradley Kavanagh, Instituto de Física de Cantabria (CSIC-Universidad de Cantabria)
10. **Group IFT-UAM.** PI: David Garcia Cerdeño, Instituto de Física Teórica (Universidad Autónoma de Madrid)
11. **Group UJA.** PI: Josep Martí Ribas, Universidad de Jaén
12. **Group IAA.** PI: Iván Agudo, Instituto de Física de Andalucía
13. **Group DIPC-EHU.** PI: Juan José Gómez-Cadenas, Donostia International Physics Center
14. **Group USAL.** PI: Iván de Martino, Universidad de Salamanca
15. **Group ICE.** PI: Diego Torres, Instituto de Ciencias del Espacio (CSIC)
16. **Group IAC.** PI: Alicia López Oramas, Instituto de Astrofísica de Canarias
17. **Group ICC-UB.** PI: Pol Bordas Coma, Institut de Ciències del Cosmos (Universitat de Barcelona)
18. **Group CLPU.** PI: Teresa Cebriano Ramírez, Centro de Láseres Pulsados

- **WG1: Gravitational Waves:** Alicia Sintès (UIB), Sascha Husa (ICE), Diego Blas (IFAE)
- **WG2: Gamma Rays:** Rubén López Coto (IAA), Alberto Domínguez (UCM), Oscar Blanch (IFAE)
- **WG3: Cosmic Rays (charged & neutrinos):** Jorge Casaus (CIEMAT), Jaime Álvarez-Muñiz (IGFAE-USC), Rebecca Gozzini (IFIC)
- **WG4: Dark Energy and Cosmology:** Antonio López Maroto (UCM), Ivan de Martino (USAL), Mar Bastero (UGR)
- **WG5: Neutrino Physics:** Carmen Palomares (CIEMAT), Pau Novella (IFIC), Francesc Monrabal (DIPC)
- **WG6: Dark Matter:** Bradley Kavanagh (IFCA), Theopisti Dafni (CAPA), David Cerdeño (IFT)
- **WG7: Outreach:** Sergio Pastor (IFIC), María Martínez (CAPA)

WORKING GROUPS RESPONSABILITIES:

- Serve as points of contact for members of the network working in the same research area, facilitating communication and encouraging the sharing of knowledge, methodologies, and ideas to foster a collaborative environment.
- Organize the thematic sessions of the network meetings in the respective areas, actively promoting participation among the groups, proposing speakers, and ensuring alignment with the interests and needs of the respective research communities.

- a) To facilitate the **exchange of information generated by Spanish research groups, both theoretical and experimental**, in the field of Astroparticles, and to foster effective collaboration among them.
- b) To provide and distribute relevant information to the groups and promote the **coordination of actions for national and international initiatives**
- c) To act as an **interlocutor between the Spanish astroparticle community and the most representative national and international committees** in Astroparticle Physics, such as APPEC, and coordinate the exchange of information
- d) To contribute to the **training of young researchers** in the field of astroparticles
- e) To maintain a **map of astroparticles in Spain**: a complete and updated database of groups, experiments, researchers, projects, infrastructures, etc.
- f) To gather information and **disseminate the scientific activities** carried out in this field among the participating groups and society in general, making scientific knowledge and the latest advances and discoveries in science and technology **accessible to the general public**.
- g) To contribute to **gender balance** at all stages of the research career through actions aligned with gender initiatives in the scientific-technical field (STEM).

- Network coordinators
- Mailing list> cpan-astroparticulas
 - To subscribe: <https://pegaso.ific.uv.es/mailman/listinfo/cpan-astroparticulas>
- Working on website... **redrenata.es**
- Network meetings
 - CPAN days
 - RENATA meetings

Recent network activity



**RENATA & 21st MultiDark
Joint Meeting**
Santander, 8-11 October 2024

RENATA
Red Nacional de Astropartículas

MultiDark
Multimessenger Approach
for Dark Matter Detection

8-9 October: Joint RENATA-MultiDark Meeting, "Update of the European Strategy for Particle Physics"
10-11 October: Annual Meeting of the Spanish Multidark Network

More info: www.multidark.es

Organizers: Maria Martinez Perez (mariam@unizar.es), Miguel Angel Sanchez Conde (miguel.sanchezconde@uam.es), Carmen Palomares Espiga (mc.palomares@ciemat.es), Sergio Pastor (pastor@ific.uv.es)

Host:  IFCA

Funding:  CSIC  Universidad de Cantabria
 GOBIERNO DE ESPAÑA  MINISTERIO DE CIENCIA E INNOVACIÓN  AGENCIA ESTATAL DE INVESTIGACIÓN

- Joint meeting RENATA/Multidark networks to discuss the input of the Spanish astroparticles community to the Update of the European Strategy for Particle Physics (ESPP)
- 2 days, 64 participants
- Output: "Position for the Update of the European Strategy for Particle Physics provided by RENATA, MULTIDARK and REDONGRA thematic networks"

https://indico.ific.uv.es/event/7664/contributions/25545/attachments/12740/18214/astropinput_updateESPP26.pdf

<https://indico.ifca.es/event/3186/>

Recent network activity



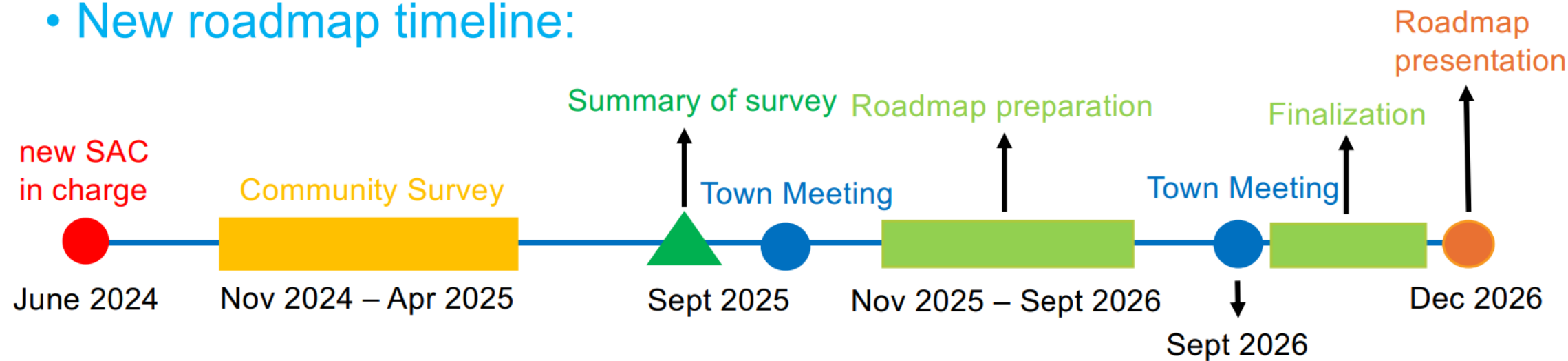
- RENATA 2025 meeting
- discuss and coordinate the Spanish strategy in view of the APPEC strategic roadmap 2027-2036 for astroparticle physics
- 50 participants
- Output: “Status and perspectives of astroparticles in Spain”
<https://indico.cern.ch/event/1516919/contributions/6704309/>

<https://indico.ifca.es/event/3186/>



APPEC 2027-2036 Strategic Roadmap

- New roadmap timeline:



APPEC Town Meeting 2025 – Zaragoza, Spain