

CPAN Network on Instrumentation and detectors

Casa de la Ciencia del CSIC, Valencia, July 2nd 2024



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International Context

- European Committee for Future Accelerators (ECFA) released in 2021 the ECFA detector roadmap:
 - Overview of future facilities (EIC, ILC, CLIC, FCC-ee/hh, Muon collider) or major upgrades (ALICE, Belle-II, LHC-b,...) and its timeline
 - Nine Technology domains based on Task Forces areas, the most urgent R&D topics in each Task Force area identified as Detector R&D Themes (DRDTs)



International Context (2)

- In parallel, the US HEP community, at the 2022 Coordinating Panel for Advanced Detectors (CPAD) annual workshop launched a network of US Detector R&D Collaborations.




RDC	Topic
1	Noble Element Detectors
2	Photodetectors
3	Solid State Tracking
4	Readout and ASICs
5	Trigger and DAQ

RDC	Topic
6	Gaseous Detectors
7	Low-Background Detectors (incl. CCDs)
8	Quantum and superconducting Detectors
9	Calorimetry
10	Detector Mechanics
11	Fast Timing

Spanish Network on Instrumentation (short recapitulation)

- Proposal for a network on Instrumentation and Detectors, XV CPAN Days, October 2023, Santander (spin-off of a previous meeting in February 2023 at IMB-CNM).
<https://indico.cern.ch/event/1283224/contributions/5612901/>
- Initially:
 - **Building a Community** of Experts in Instrumentation and Detectors.
 - Platform for sharing and exchanging knowledge, technologies, practices, and research findings in instrumentation across different fields and disciplines → **Annual Workshop**
- In Subsequent Phases:
 - Promoting collaboration among groups that may lead to joint research projects.
 - Representing the community to influence and advise scientific leadership (as in case of the **DRD collaborations** or the coming update of **European Strategy for Particle Physics**).
 - Capacity development: training activities → Schools, courses, and/or topical mini-workshops.
 - Recognition of excellence → Awards for students

Agreed Actions in Santander

- Drafting a brief document to summarize the goals the network, to introduce it to the CPAN groups. 
- To launch a community survey to gather the inputs of the groups and carry out a preliminary definition the Working Groups. 
- Preparation of the CNID kick-off workshop in May 2024 in Valencia. 

Kick-off meeting in Valencia



CNID

CPAN Ingenio 2010

CPAN Network on Instrumentation and Detectors (CNID)

8-10 May 2024
Colegio Mayor Rector Peset
Comunidad Valenciana

Overview

Call for Abstracts

Timetable

Registration

Participant List

Venue

Workshop Dinner

ZOOM link

Gallery

Timetable

Wed 08/05Thu 09/05Fri 10/05All days

PrintPDFFull screenDetailed viewFilterSession legend

Wed 8/5

Regions

Sesión de Actos - Colegio Mayor Rector Peset12:30 - 13:00

Comida

Comedor, Colegio Mayor Rector Peset13:00 - 14:00

Welcome

Sesión de Actos - Colegio Mayor Rector Peset14:30 - 14:36

Introduction to the CNID Kick-off meeting

Sesión de Actos - Colegio Mayor Rector Peset14:36 - 14:46

Instrumentation & Detector R&D in Particle physics: CNID Collaborations Status

Sesión de Actos - Colegio Mayor Rector Peset14:46 - 15:00

Instrumentation & Detector R&D in Nuclear physics

Sesión de Actos - Colegio Mayor Rector Peset15:00 - 15:15

Instrumentation & Detector R&D in Astrophysics

Sesión de Actos - Colegio Mayor Rector Peset15:15 - 15:30

R&D on noble element scintillation detectors at IFIC

Sesión de Actos - Colegio Mayor Rector Peset15:30 - 15:46

LiquidX opaque light detection technology

Sesión de Actos - Colegio Mayor Rector Peset15:46 - 15:50

Spectroscopy of the Ar scintillation light for rare event searches

Sesión de Actos - Colegio Mayor Rector Peset15:50 - 16:15

R&D on VUV photon detection for cryogenic liquid detectors

Sesión de Actos - Colegio Mayor Rector Peset16:15 - 16:30

Café

Sesión de Actos - Colegio Mayor Rector Peset16:30 - 17:00

R&D on High Resolution Temperature Sensing for Cryogenics Applications

Sesión de Actos - Colegio Mayor Rector Peset17:00 - 17:25

Governance Proposal

Sesión de Actos - Colegio Mayor Rector Peset17:25 - 18:00

Announcement of the future accelerator network meeting in Valencia

Sesión de Actos - Colegio Mayor Rector Peset18:00 - 18:10

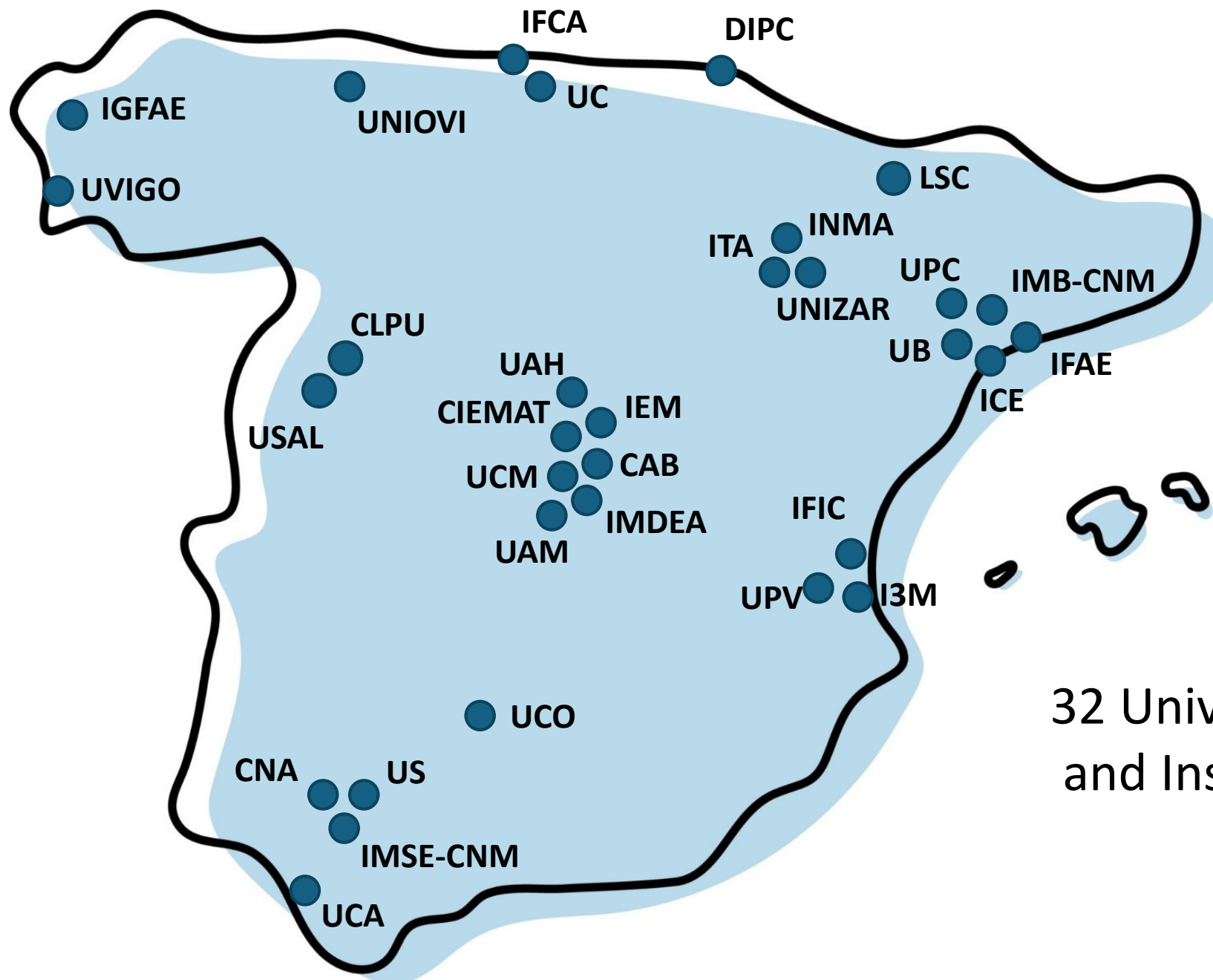
Training Discussion

Sesión de Actos - Colegio Mayor Rector Peset18:15 - 18:45

Thu 9/5	
09:00	<div>ITS solutions in ERDT: Power efficiency & Timing</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:00 - 09:30</div> <div>Triggering on muon showers in the Barrel Muon Trigger of the CMS experiment for the HL-LHC upgrades</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:30 - 09:45</div> <div>Research and development of the acquisition electronics for the KIDNET neutrino telescope</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:45 - 09:55</div> <div>Enhancing Data Processing in the CMS Trigger System for HL-LHC with HLS</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:55 - 10:00</div>
10:00	<div>Programmable readout electronics for radiation environments</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:00 - 10:05</div> <div>The Energy Measurement ASIC for the Upgrade II in the LHC's Calorimeter Detector</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:05 - 10:10</div> <div>Precision & deterministic timing distribution study with Microsemi FPGAs</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:10 - 10:15</div> <div>Development of an AI based Central Trigger Processor board for the advanced SPM based camera of the CTA Large Size Telescopes</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:15 - 10:20</div>
11:00	<div>The Prefrocessor system for the ATLAS Tile Hadronic Calorimeter at the HL-LHC</div> <div>Sesión de Actos - Colegio Mayor Rector Peset11:00 - 11:15</div> <div>Café</div> <div>Sesión de Actos - Colegio Mayor Rector Peset11:15 - 11:45</div> <div>Mechanical design and integration at RDS-FAIR experiment</div> <div>Sesión de Actos - Colegio Mayor Rector Peset11:45 - 12:00</div>
12:00	<div>Microchannel Cooling Developments at INFN-CM</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:00 - 12:15</div> <div>The global and local support structures of the endcap for the ATLAS Hb-Stripes</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:15 - 12:30</div> <div>Integration of the Fiber Wound Assembly for the Euclid Satellite</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:30 - 12:45</div> <div>Test bench for the SOLIDE Superconducting Recoil Separator SRS</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:45 - 13:00</div>
13:00	<div>Comida</div> <div>Comedor, Colegio Mayor Rector Peset13:00 - 14:00</div>
14:00	<div>The readout and optics of the endcap of the ATLAS inner tracker for the HL-LHC</div> <div>Sesión de Actos - Colegio Mayor Rector Peset14:00 - 14:15</div> <div>Detector developments for the ATLAS phase II upgrades at EAC</div> <div>Sesión de Actos - Colegio Mayor Rector Peset14:15 - 14:30</div> <div>Characterization of 3D pixel sensors for the CMS Tracker Upgrade at the High Luminosity LHC</div> <div>Sesión de Actos - Colegio Mayor Rector Peset14:30 - 14:45</div> <div>Instrumented baffles for Advanced Virgo</div> <div>Sesión de Actos - Colegio Mayor Rector Peset14:45 - 15:00</div>
15:00	<div>Detectors and Instrumentation for astronomical space and ground telescope missions</div> <div>Sesión de Actos - Colegio Mayor Rector Peset15:00 - 15:15</div> <div>LiDAR development at INFN-CM</div> <div>Sesión de Actos - Colegio Mayor Rector Peset15:15 - 15:30</div> <div>Micro vertex detection systems for the MAM-CDS HighL Experiments</div> <div>Sesión de Actos - Colegio Mayor Rector Peset15:30 - 15:45</div> <div>193 a pixel Si Tracker for RDS-FAIR</div> <div>Sesión de Actos - Colegio Mayor Rector Peset15:45 - 16:00</div>
16:00	<div>The DMAPS upgrade of the Belle II Vertex Detector</div> <div>Sesión de Actos - Colegio Mayor Rector Peset16:00 - 16:15</div> <div>High efficiency neutron spectrometry for underground physics, space weather and environmental dosimetry</div> <div>Sesión de Actos - Colegio Mayor Rector Peset16:15 - 16:30</div> <div>Café</div> <div>Sesión de Actos - Colegio Mayor Rector Peset16:30 - 17:00</div>
17:00	<div>Transmission detection of protons with thin organic scintillators</div> <div>Sesión de Actos - Colegio Mayor Rector Peset17:00 - 17:15</div> <div>Advances in high repetition rate metrology of laser-driven ion beams and electromagnetic pulses at the CLAP</div> <div>Sesión de Actos - Colegio Mayor Rector Peset17:15 - 17:30</div> <div>X-ray optics for Particle, Astrophysics and Nuclear Physics</div> <div>Sesión de Actos - Colegio Mayor Rector Peset17:30 - 17:45</div> <div>Muon tomography status and applications</div> <div>Sesión de Actos - Colegio Mayor Rector Peset17:45 - 18:00</div>
18:00	<div>Development of dosimetry and monitoring applications with CLYC detectors for nuclear technology</div> <div>Sesión de Actos - Colegio Mayor Rector Peset18:00 - 18:15</div> <div>Advanced semiconductor dosimeters for new radiotherapies</div> <div>Sesión de Actos - Colegio Mayor Rector Peset18:15 - 18:30</div> <div>RES innovative detectors for medical applications</div> <div>Sesión de Actos - Colegio Mayor Rector Peset18:30 - 18:45</div>

Fri 10/5	
09:00	<div>T-BENCHAL, a 5D calorimeter for future Higgs Factories</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:00 - 09:15</div> <div>Technological challenges on sensor-electronics hybridization for compact silicon longrange electromagnetic calorimeters</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:15 - 09:30</div> <div>Test beam measurements of instrumented sector planes for a high compact and granular electromagnetic calorimeter</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:30 - 09:45</div> <div>PixelCal: processing timing information for LHCb Upgrade II</div> <div>Sesión de Actos - Colegio Mayor Rector Peset09:45 - 10:00</div>
10:00	<div>Caracterización de detectores altamente segmentados en la mesa de ensayo SALSA</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:00 - 10:15</div> <div>KMC characterization of physics detectors</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:15 - 10:30</div> <div>The SPAC-TCT method for semiconductor sensors characterization</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:30 - 10:45</div> <div>Integration of high temporal resolution planes into ADA-type telescopes for Sensor Characterization</div> <div>Sesión de Actos - Colegio Mayor Rector Peset10:45 - 11:00</div>
11:00	<div>Characterization of detectors using MeV ion beams at the CNA</div> <div>Sesión de Actos - Colegio Mayor Rector Peset11:00 - 11:15</div> <div>Café</div> <div>Sesión de Actos - Colegio Mayor Rector Peset11:15 - 11:45</div> <div>Direct detection of ultra-light particles like dark matter</div> <div>Sesión de Actos - Colegio Mayor Rector Peset11:45 - 12:00</div>
12:00	<div>Development of new generation Active Targets and Submilli Spectrometers for reactions with radioactive beams</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:00 - 12:15</div> <div>Using Microgases detectors for direct dark matter searches: challenges and perspectives</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:15 - 12:30</div> <div>Development of scintillation detectors for nuclear physics research</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:30 - 12:45</div> <div>Test of a pure LArCT scintillator crystal for proton range verification</div> <div>Sesión de Actos - Colegio Mayor Rector Peset12:45 - 13:00</div>
13:00	<div>New scintillation materials with neutron gamma discrimination capability for nuclear research</div> <div>Sesión de Actos - Colegio Mayor Rector Peset13:00 - 13:15</div> <div>Instrumentation developments for beta decay studies</div> <div>Sesión de Actos - Colegio Mayor Rector Peset13:15 - 13:30</div> <div>Fast scintillator detectors for nuclear structure and applications</div> <div>Sesión de Actos - Colegio Mayor Rector Peset13:30 - 13:45</div> <div>Understanding the nonlinear response of SiPMs</div> <div>Sesión de Actos - Colegio Mayor Rector Peset13:45 - 14:00</div>
14:00	<div>Design and expected performance of the LISA Radiation Monitor</div> <div>Sesión de Actos - Colegio Mayor Rector Peset14:00 - 14:15</div> <div>The ESR-CASRA hybrid spectrometer at ESR</div> <div>Sesión de Actos - Colegio Mayor Rector Peset14:15 - 14:30</div> <div>Final Remarks</div> <div>Sesión de Actos - Colegio Mayor Rector Peset14:30 - 14:45</div>

80 participants
67 contributions



32 University centers
and Institutes

- **WG1 Gaseous detectors:** Yassid Ayyad (IGFAE) + Cristina Fernández (Ciemat)
- **WG2 Liquid detectors:** Clara Cuesta (Ciemat) + Justo Martín (IFIC)
- **WG3 Solid state:** Sebastian Grinstein (IFAE) + Carlos Mariñas (IFIC) + Teresa Kurtukian (IEM)
- **WG4 Calorimetry:** Mary-Cruz Fouz (Ciemat) + Héctor Alvarez-Pol (IGFAE)
- **WG5 Quantum/Superconductor sensors:** Gemma Rius (IMB-CNM) + Igor García Irastorza (IUNIZAR)
- **WG6 Electronics:** Santiago Folgeras (UNIOVI) + Fernando Arteché (ITA) + Diego Real (IFIC)
- **WG7 Mechanics & Integration:** Cristobal Padilla (IFAE) + Enrique Casarejos (UV)
- **WG8 Applications:** Carlos Guerrero (US) + Gabriela Llosá (IFIC)
- **WG9 Scintillators and photodetectors:** Luis Mario Fraile (UCM) + David Gascon (UB)
- **WG10 Characterization Techniques:** Carmen Jiménez (CNA) + Jordi Duarte Campderrós (IFCA)
- **WG11 Training:** to be appointed (dependent of the institution leading the school organization)
- **WG12 Low-Background experiments:** Susana Cebrián (IUNIZAR) + Francesc Monrabal (DIPC) + Roberto Santorelli (CIEMAT)
- **Coordinator:** Iván Vila (IFCA); **Deputy Coordinators:** Cesar Domingo (IFIC) + Inés Gil (Ciemat)

Kick-off meeting: Governance

- **Institutional board (Government body):**
 - One member with vote for each institute or university center.
- **Steering team (Executive body):**
 - One network coordinator and two deputy coordinator (from the three CPAN fields).
 - Two/Three conveners for each WG.
- Steering team members to be renewed after a **two year term** (desired but not mandatory, we may run out of people).

Kick-off meeting: Agreed actions

- Complete the Working Group list and the corresponding conveners list
- Complete the list of participating centres and IB representatives.
- Endorsement of the Interim (one year term) steering team by the IB representatives
- Prepare a “Network Framework Agreement” to outline the governance structure and modus operandi (note: this is not a MoU and does not involve any type of commitments).
- Call for volunteer centers (people) to organize/contribute to the Instrumentation School in 2025.



IN PROGRESS

IN PROGRESS

IN PROGRESS

IN PROGRESS

Unexpected entropy, though welcome



GOBIERNO DE ESPAÑA



MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES



AGENCIA ESTATAL DE INVESTIGACIÓN

AGENCIA ESTATAL DE INVESTIGACIÓN

Buscar...

Español

SOBRE LA AEI

CONVOCATORIAS

ÁREAS TEMÁTICAS

EVALUACIÓN

AYUDAS CONCEDIDAS

COLABORACIÓN INTERNACIONAL

FONDOS EUROPEOS

CONTÁCTANOS

Inicio / Convocatorias / Buscador de convocatorias / Redes de Investigación 2024

Convocatoria de tramitación anticipada para el año 2024

20/06/2024

Modificación de la Resolución del 27 de mayo de 2024 de la Presidencia de la Agencia Estatal de Investigación, por la que se aprueba la convocatoria de tramitación anticipada para el año 2024 del procedimiento de concesión de ayudas a redes de investigación.

24/06/2024

Actualizado el documento Manual para presentación de solicitudes RED2024.

Plan Estatal	Plan Estatal de Investigación Científica y Técnica y de Innovación 2024-2027
Programa	Programa Estatal de Transferencia y Colaboración
Subprograma	Subprograma Estatal para impulsar la Colaboración en y entre los Sectores Público y Privado
Estado de la convocatoria	 Abierta
Plazos de solicitud	Plazo de presentación de solicitudes: 12/06/2024 - 10/07/2024 a las 14:00 horas (hora peninsular española). Plazo único.
Descripción general	Esta convocatoria tiene como finalidad la creación de redes de investigación para promover la complementariedad de capacidades y optimizar los recursos de investigación existentes. De este modo se generan sinergias entre grupos de investigación de distintas instituciones. Las actividades científico-técnicas a las que van dirigidas estas redes tienen que demostrar su valor añadido en base a la consecución de objetivos comunes y compartidos y la realización de actividades que no podrían financiarse a través de otros instrumentos.
Objetivos específicos y actividades que se financian	Las ayudas objeto de esta convocatoria financiarán las actividades para la creación y desarrollo de redes de grupos de investigación encaminadas a: <ul style="list-style-type: none">Redes Temáticas. Fomentar la colaboración, coordinación y creación de sinergias y complementariedad entre grupos de investigación financiados en convocatorias anteriores de proyectos del Plan Estatal de I+D+I, así como incrementar el impacto de los resultados de investigación obtenidos en dichos proyectos.

Información

- Orden de bases
- Convocatoria

Convocatorias relacionadas

- Redes de Investigación 2022
- Acciones de dinamización "Redes de Investigación" 2018
- Acciones de dinamización "Redes de Excelencia" 2017
- Acciones de dinamización "Redes de Excelencia" 2016

 Calendario

 Suscripciones a boletín semanal

- The management team (C. Domingo, I. Gil, and I. Vila) will serve as the editorial team for the thematic network proposal, which will be fully drafted in the next few days (this Thursday).

CNID & the future collider experiments (HEP)

- The ECFA Roadmap defined the detector R&D topics that should address enable the future HEP experiments (including the collider experiments): the **DRDTs**
- The DRDTs are addressed by strategic R&D projects within the DRD collaborations, known as Working Packages (WPs). Each WP has an associated MoU that is 'resource-loaded,' meaning that for each WP implementing strategic R&D in a DRD, an Annex to the basic MoU will be signed by the participating institutions (not the ministry), including commitments for budget, in-kind contributions, and manpower.
- As today, for example, there have been proposed WP along the needs of future vertex detectors at lepton colliders or hadron colliders.
- The networking inside CNID shall be a tool to promote the participation of the HEP Spanish groups in the strategic R&D projects (WPs), increase the awareness of the community and, fostering inter-group collaboration to increase the impact of their activities.

Summary

- A network on instrumentation just launched across the different areas of the CPAN, still under shaping to become a useful tool for the community.
- Excellent response of the community, many groups interested and contributing, not just the CPAN “physicist” core but many “engineer” groups.
- Specifically, concerning the R&D for future collider experiments this activity should be fanned out via the DRDs strategic R&D, at least.

Back - up

About the Working Group convener charge:

- **Organizing the agenda for the network's upcoming annual workshops:** planning and scheduling the topics, sessions, speakers, and activities for the workshops to ensure they address the network's objectives and priorities effectively.
- **Facilitating discussions and collaborations within the working group:** encourage active participation, exchange of ideas to foster collaboration and achieve common goals.
- **Promoting collaborations between different working groups:** facilitating communication and collaboration between various working groups within the network, encouraging cross-pollination of ideas, sharing of resources, and coordination of efforts to maximize the network's impact and effectiveness.

About the Annual Workshop:

- **One per year, standalone workshop before CPAN annual workshop**
 - **Duration of three days (maybe we need to increase the discussion time)**
 - **Should cover all the topics in great detail.**
- **Parallel session during CPAN days on dedicated topics and summary talks.**

Discussion on Training

- **Specific goal proposal:** to carry out a hand-on two-week school with biannual periodicity (it could be thematic).
- **WG training conveners** are expected to be direct responsible (hosting providing funds or resources) for the preparation of the schools
- **Please contact us if you want to:** host and/or contribute (personel, funds, equipent