



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101008324 (ChETEC-INFRA).

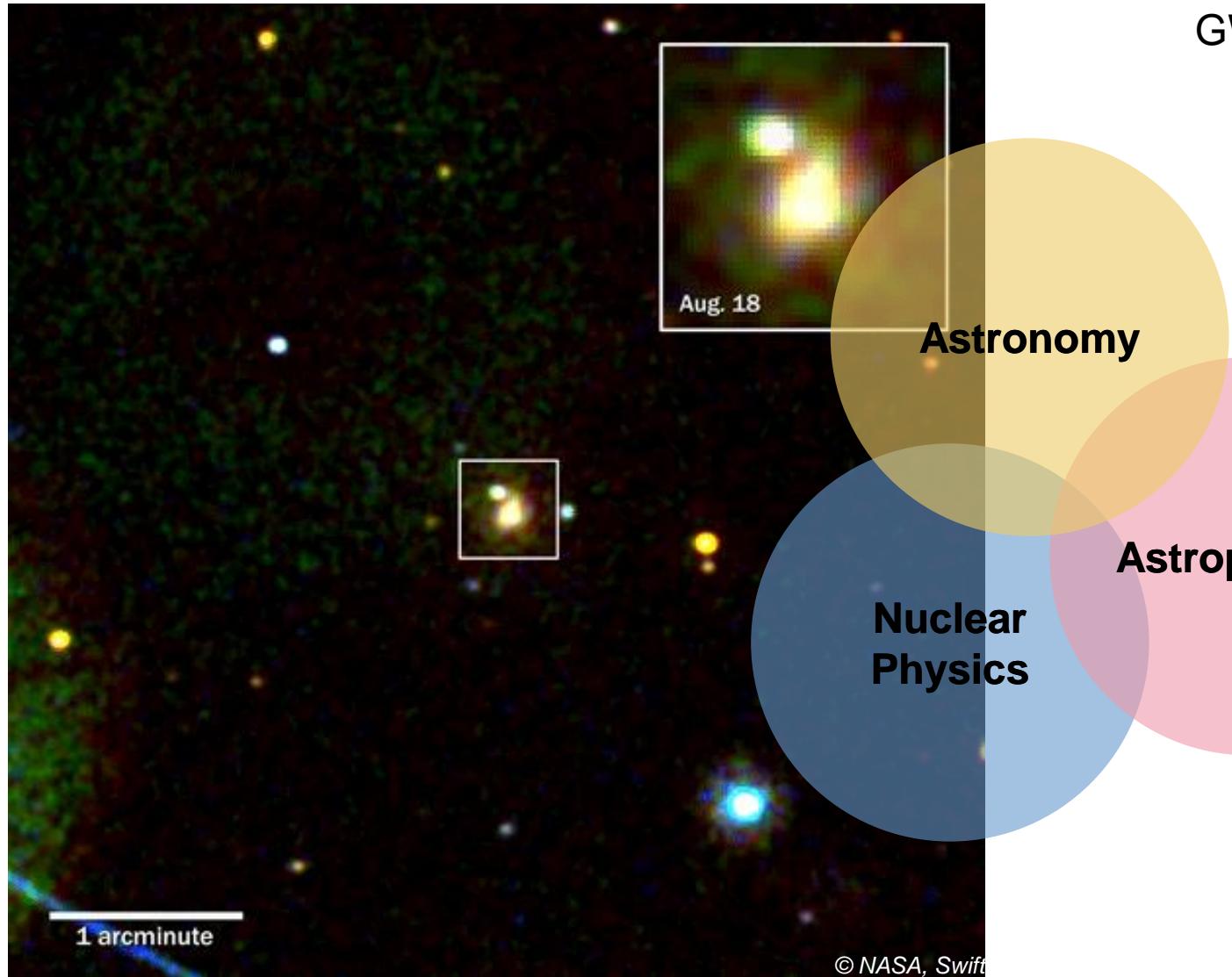
ChETEC-INFRA

Chemical Elements as Tracers of the Evolution of the Cosmos – Infrastructures for Nuclear Astrophysics

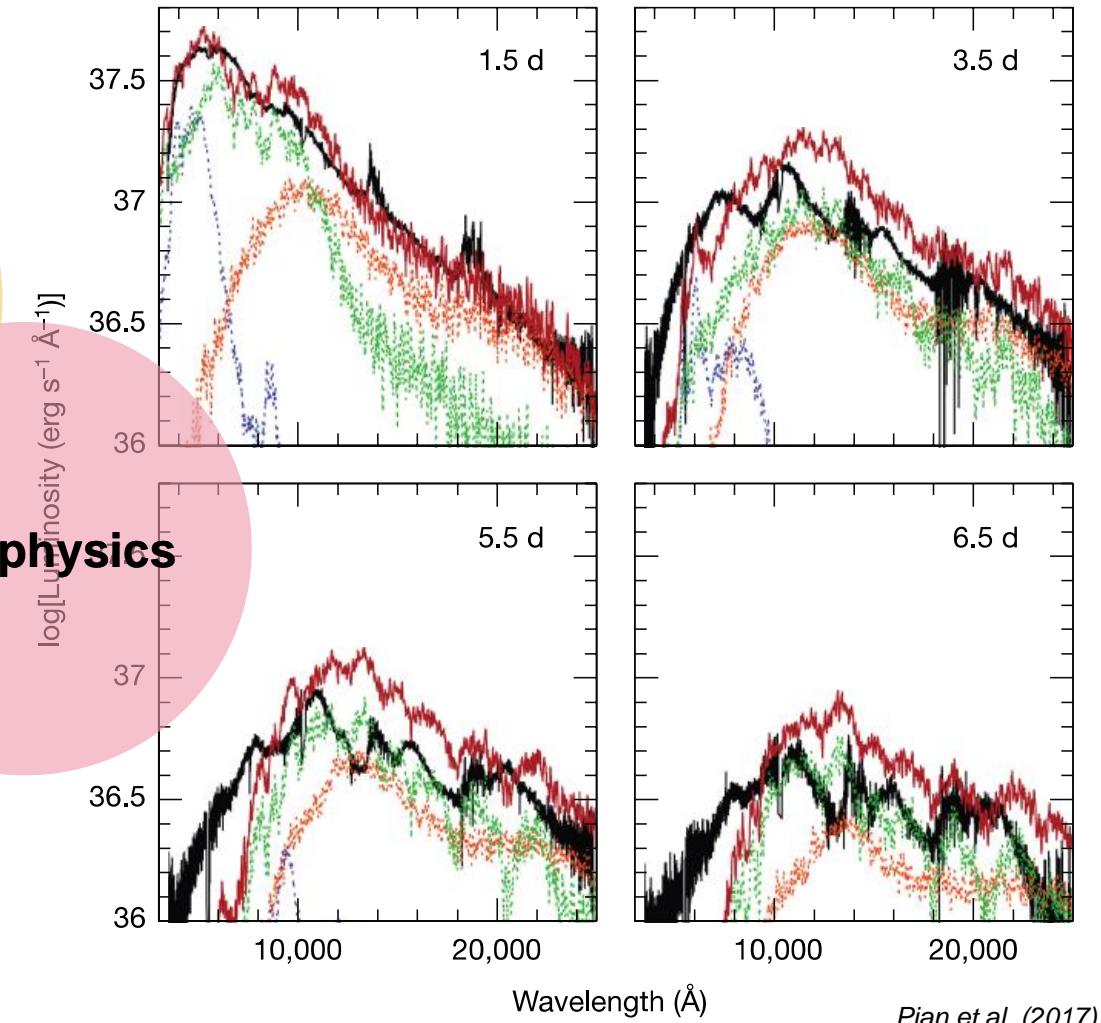
- EU Horizon 2020 **Starting Community** of research infrastructures to serve nuclear astrophysics
- H2020-INFRAIA-2020-1
- **32 partners** in 17 EU+ countries
- 1 May 2021 – 30 April 2025
- 5.0 M€ support by EU
- **13 research infrastructures** offer EU-supported transnational access, selection based on scientific merit
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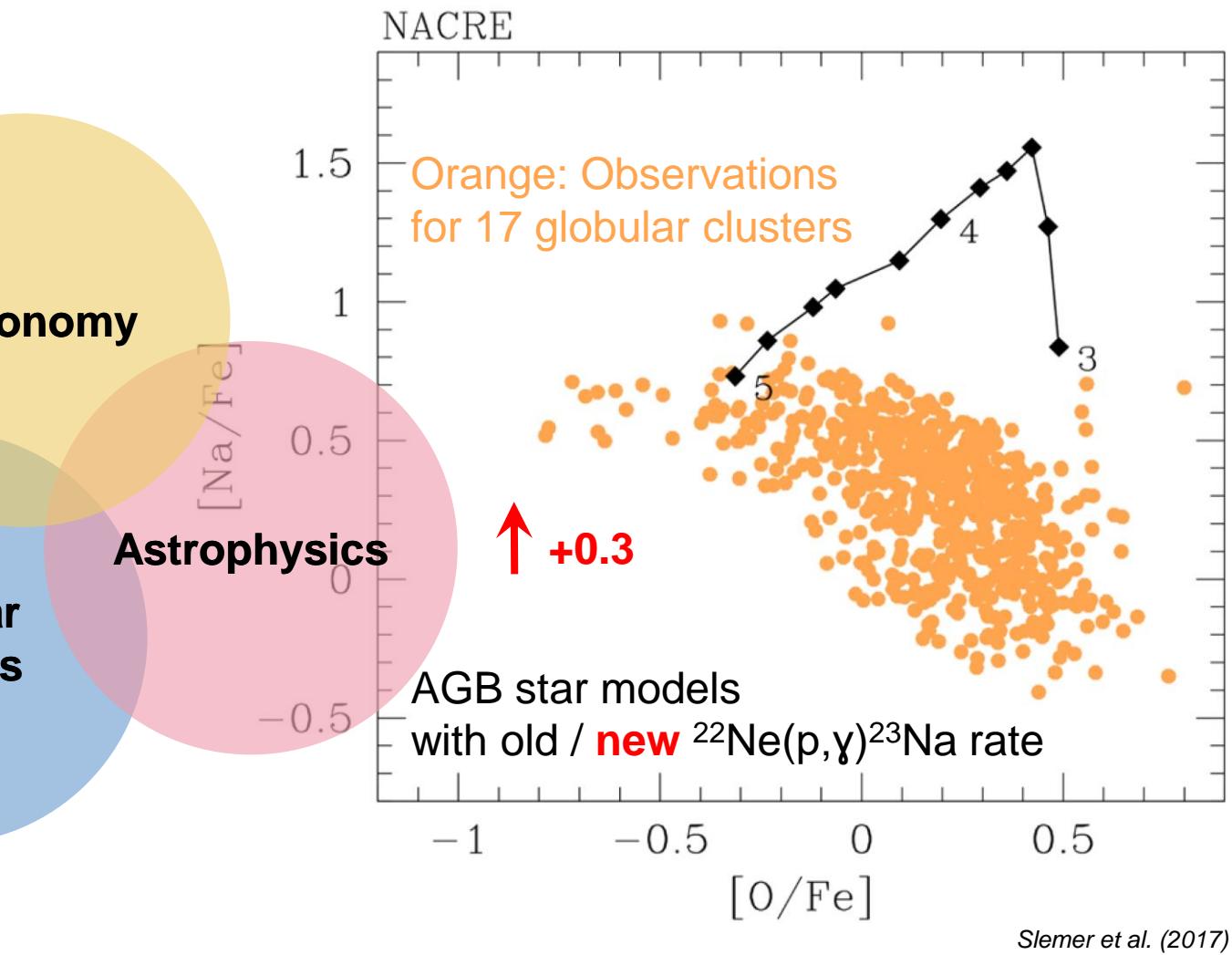
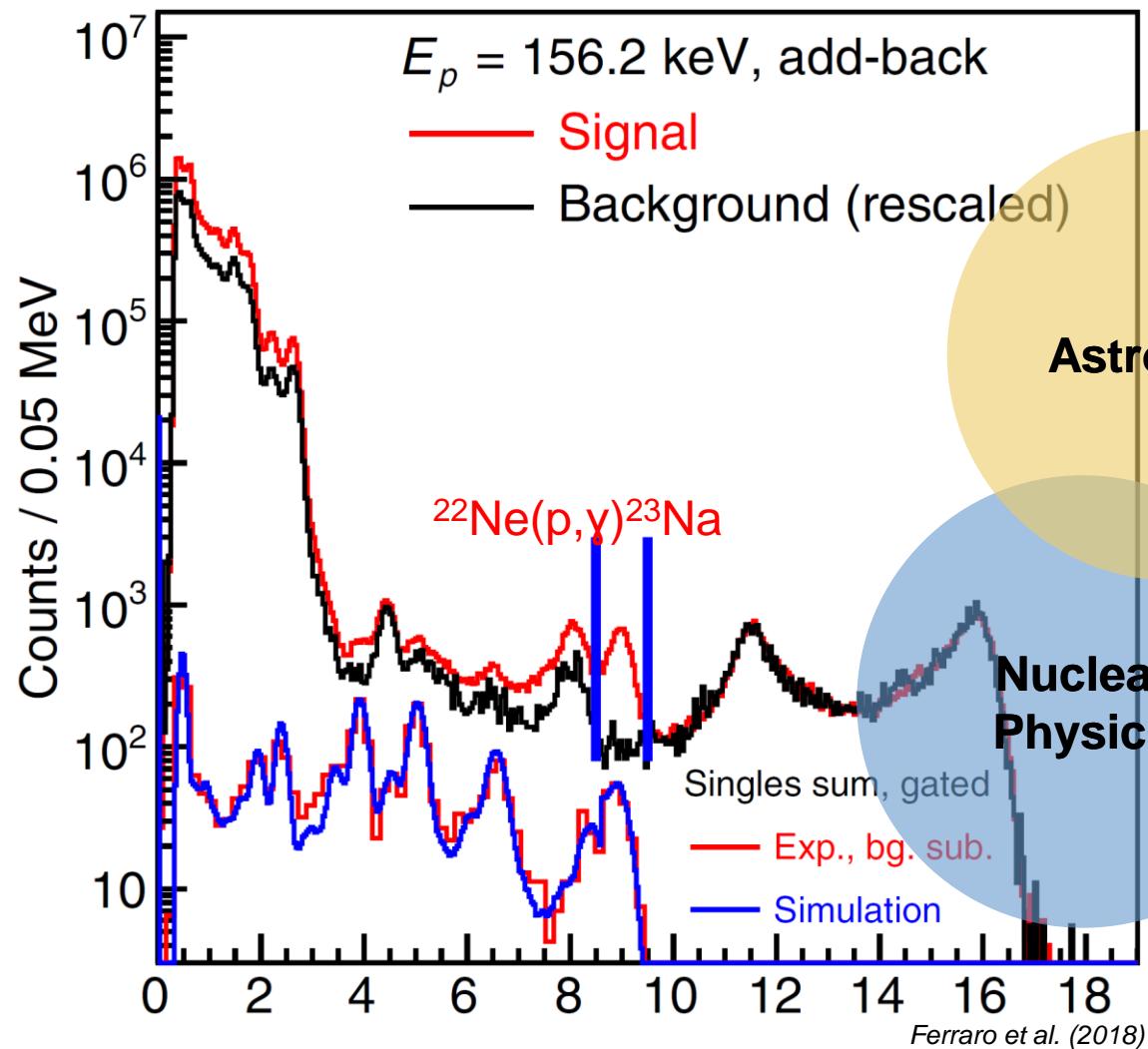
Nuclear astrophysics at the intersection of three disciplines



GW170817 and its kilonova



Nuclear astrophysics at the intersection of three disciplines

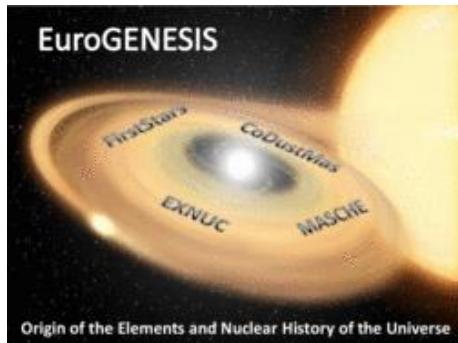


Nuclear astrophysics as an emerging field in Europe



- COST Action ChETEC
 - Chemical Elements as Tracers of the Evolution of the Cosmos
 - 30 European countries represented
 - April 2017 – October 2021
 - **Forerunner of ChETEC-INFRA**
- Nuclear Physics in Astrophysics Conference series, since 2002
 - Sponsored by the Nuclear Physics Division of the European Physical Society
 - 200+ participants
 - **NPA X: 5 – 9 September 2022 at CERN, Geneva, Switzerland**
 - **Partner with ChETEC-INFRA to support NPA conference schools**
- Nuclei in the Cosmos conference series, every 2 years since 1990
 - International conference alternates between Europe and non-European countries
 - 200+ participants
 - **NIC XVII: Fall 2023, South Korea**

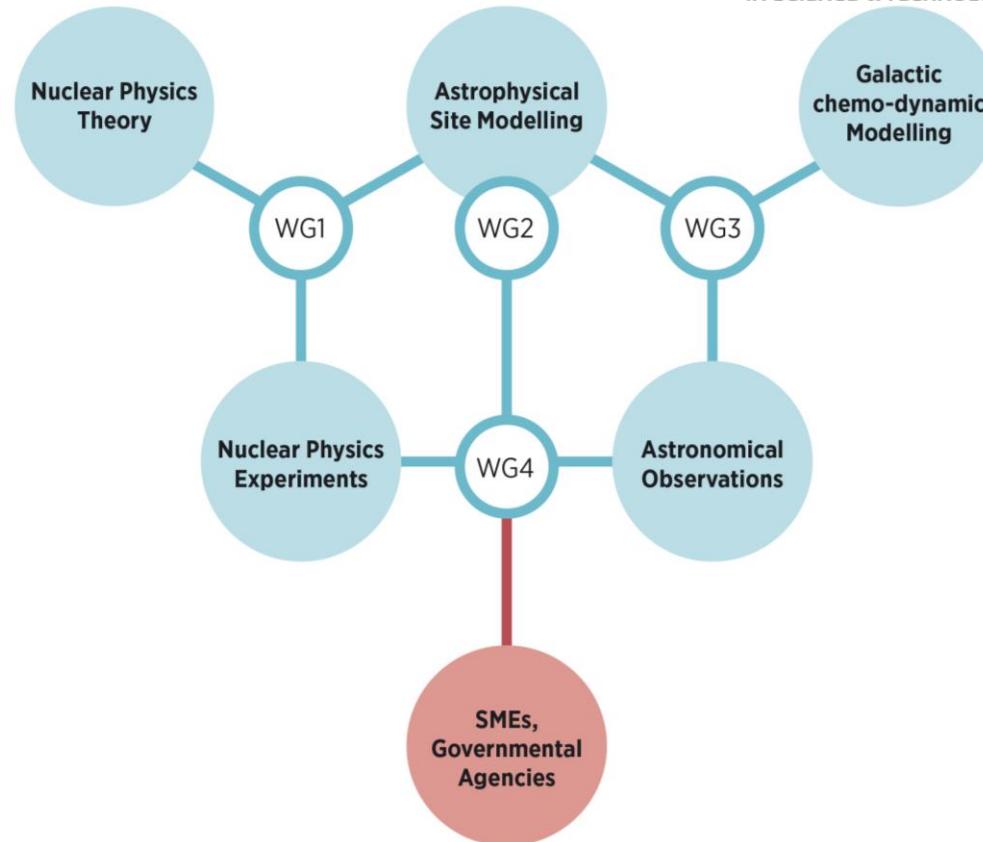
NIC



- EuroGENESIS
- European Science foundation
- [ESF website](#)
- ChETEC precursor
- 2010-2013
- Coordinator: UPC Barcelona

Chemical Elements as Tracers of the Evolution of the Cosmos

A network to bring European research, science and business together to further our understanding of the early universe

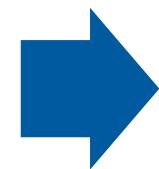


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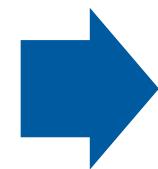
- Mobility support 2017 - 2021
- 30 European countries
- supported meetings
- Training Schools
- Short-Term Scientific Missions
- Chair: Raphael Hirschi, Keele, UK
- Legacy
 - [2022 Calendar „Women Scientists Who Made Nuclear Astrophysics“](#)
 - [YouTube series „Astronuclear Nibbles“](#)

EU Starting Community of Research Infrastructures for Nuclear Astrophysics

EuroGENESIS ESF
2010-2013
Coordinator: UPC Barcelona, ES



ChETEC COST Action
2017-2021
Coordinator: Keele University, UK



ChETEC-INFRA
2021-2025
Coordinator: HZDR, DE

5.0 M€ EU HORIZON2020 support (2021-2025)

TNA
Transnational Access

- Infrastructure **access**
- 8 Laboratories (3763 hours)
 - 1 Supercomputer (8 Mcpu hours)
 - 4 Telescopes (172 nights)

JRA
Joint Research Activities

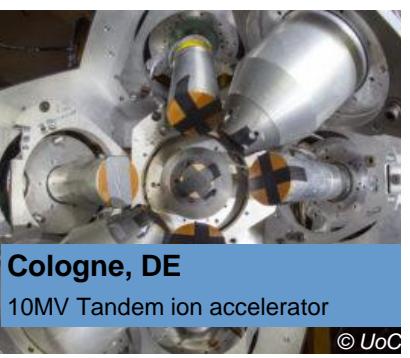
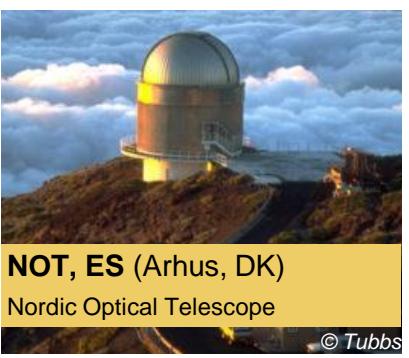
- Infrastructure **usability**
- Beams, Targets, Detectors
 - Abundance corrections
 - Analysis pipelines

NA
Networking Activities

- Infrastructure **networking**
- Rate, data and metadata libraries
 - Masterclasses, Scientific Schools
 - Conference Outreach, Research-Industry Days
 - Mass Spectrometry Network

32 partners, 17 countries, largest EU nuclear astrophysics project yet

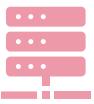
13 research infrastructures



astronuclear
laboratories



astronuclear
supercomputers



astronuclear
telescopes



32 funded partners in 17 countries



HELMHOLTZ ZENTRUM
DRESDEN ROSSENDORF



Physikalisch-Technische Bundesanstalt
Nationales Metrologieinstitut



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DEGLI STUDI
DI ENNA
"KORE"



National Centre for Nuclear Research
SWIERK



UPPSALA
UNIVERSITET



universität
wien



AARHUS UNIVERSITY



Leibniz-Institut für
Astrophysik Potsdam



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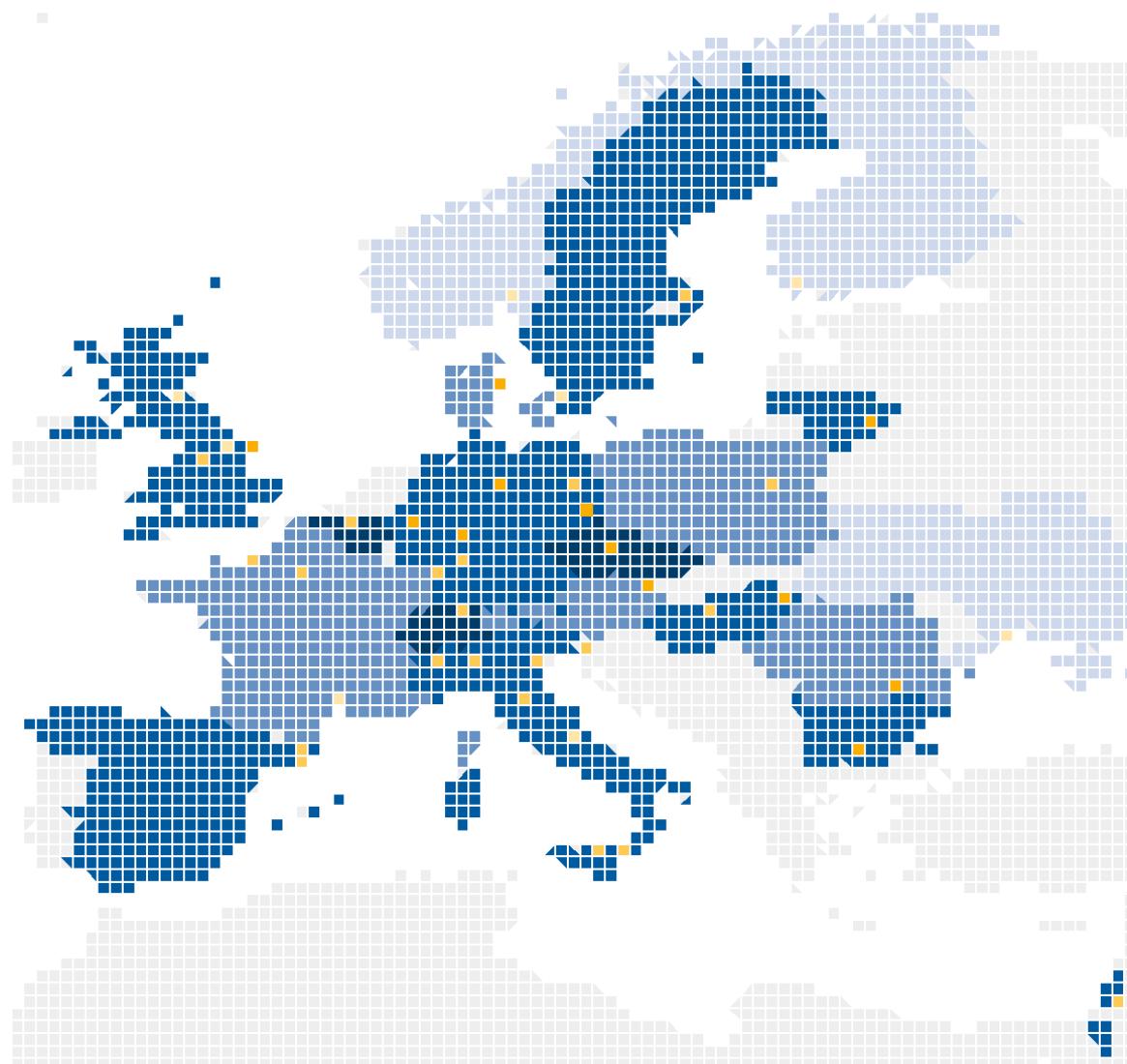
האוניברסיטה העברית בירושלים
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in Physics and Nuclear Engineering



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Institut Pluridisciplinaire
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STRASBOURG



laboratoire commun CEA/DRF CNRS/IN2P3



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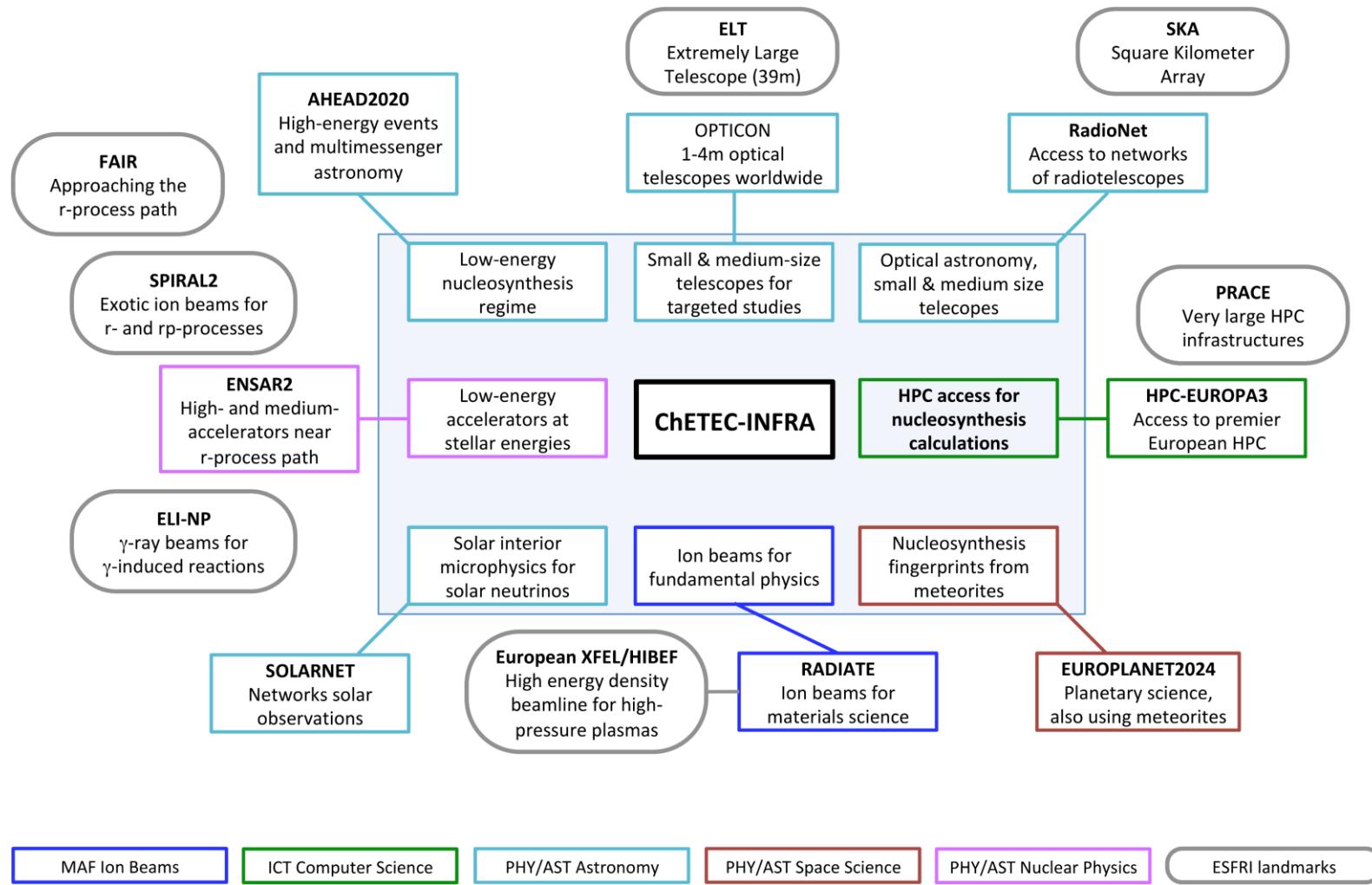
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Cross-cutting goals

- **Educate** the next generation of scientists
 - Start with high school students
 - SNAQs for PhD students reach and activate several 100 participants
- **Increase participation** across EU+, across genders, across disciplines, ...
 - Conference outreach, web page, ...
 - Top-level Gender and Inclusiveness Coordinator
- **Synergies and coherence** with neighbouring communities
 - Large telescopes, labs, and supercomputers
 - Links between astro and planetary sciences
 - Links to US IRENA, China, Japan, ...
 - Links to COST actions ChETEC, GAIA-MW, PHAROS, ...
- **Interdisciplinary** approaches
 - Advantage for TNA proposals with more than one type of infrastructure
 - Education of PhD students in all three disciplines (observation, nuclear, astro)

ChETEC-INFRA in the context of neighbouring communities



ChETEC-INFRA

- EU Horizon 2020 Starting Community of Research Infrastructures
- 13 Key national or regional infrastructures
- Construction and operation of these infrastructures is **nationally** funded
- EU funds limited amount of **access** to these 13 infrastructures (**Transnational Access**)
- EU supports usability (**Joint Research Activities**) and networking (**Networking Activities**) of these infrastructures
- EU budget does **not** fund the research itself rather **enables** it

ChETEC-INFRA people



Daniel Bemmerer
HZDR, DE
Principal investigator



Sandrine Courtin
IPHC, FR
Gender & Inclusiveness Coordinator



Axel Boeltzig
HZDR, DE
Project Manager



Konrad Schmidt
HZDR, DE
Transnational Access Coordinator



Marco La Cognata
INFN, IT
Astronuclear Laboratories



Marco Pignatari
University of Hull, UK
Astronuclear Computing



Arunas Kucinskas
Vilnius University, LT
Astronuclear Abundances



Jordi José
UPC, ES
Comprehensive Nuclear Astrophysics



Uta Bilow
TU Dresden, DE
Dissemination, Outreach, Innovation



Aldo Serenelli
CSIC, ES
Astronuclear Library



Maria Lugaro
CSFK, HU
Mass Spectrometry Network

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