



NuPECC

Long Range Plan 2024 for Nuclear Physics in Europe

Marek Lewitowicz
Chair of NuPECC



Disclaimer: the elaboration of the LRP 2024 is just in its initial phase. A draft of the recommendations can be expected in the beginning of 2024.

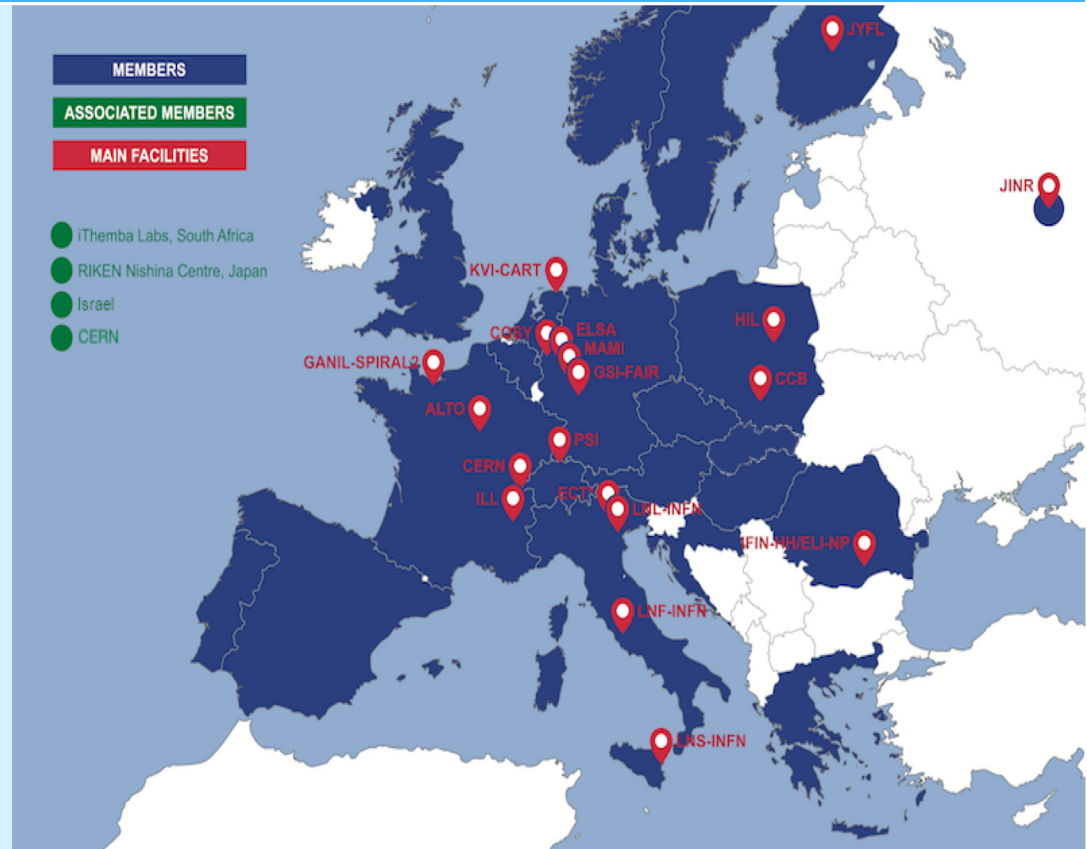
The European Expert Board for Nuclear Physics hosted by European Science Foundation

Representing
about 6000 scientists

Composition:

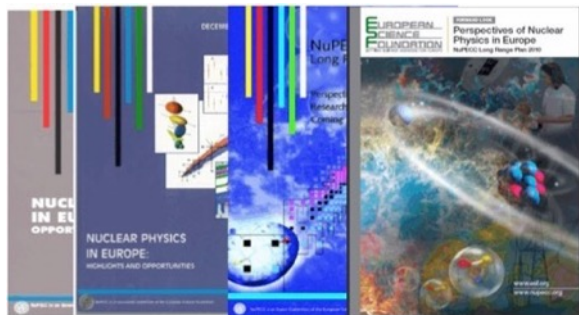
- 34 representatives from 22 countries (new members Slovakia, Slovenia), 3 ESFRI NP Infrastructures & ECT*
JINR Dubna – suspended in March 2022
- 4 associated members
 - CERN
 - Israel
 - iThemba Labs
 - Nishina Center
- 9 observers (ESF, NPD/EPS, ECFA, NSAC, ANPhA, ALAFNA, CINP, IAEA, APPEC)

3 regular Committee meetings/y



34 Years of NuPECC activities

1991 1997 2004 2010



- The LRP identifies opportunities and priorities for the nuclear science in Europe
- The LRP provides national funding agencies, ESFRI and European Commission with a framework for coordinated advances in nuclear science in Europe

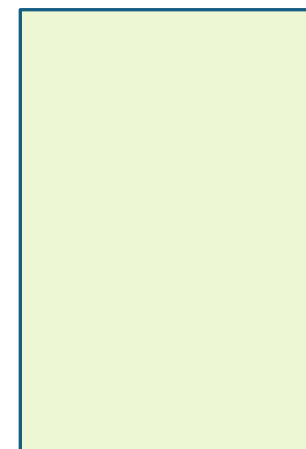
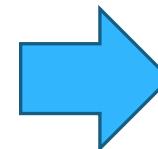


Assessment of Implementation of the NuPECC Long Range Plan 2017

February 2022

LIAISONS: G. AARTS, D. BETTONI, S. COURTIN, P. GIUBELLINO, J. GÓMEZ CAMACHO, A. GÖRGEN, R.-D. HERZBERG, D. IRELAND, B. KRUSCHE, M. LEWITOWICZ, A. MAJ, U. MEISSNER, E. NAPPI, G. NEYENS, L. POPESCU, B. SHARKOV, E. WIDMANN,

Contributors: H. Abele, N. Alahari, W. Barth, D. Bemmerer, K. Blaum, F. Bossi, A. Bracco, M. Chiossi, A. Denig, M. Doser, S. Freeman, M. Gazdzicki, F. Gélis, H. Goutte, M. Grecco, M. Harakeh, M. Hori, G. Imbriani, E. Khan, K. Kirch, W. Korten, A. Laird, J. P. Lansberg, D. Lunney, F. Maas, G. Martinez-Pinedo, S. Masciocchi, A. Mengoni, O. Navillat-Cuncic, D. Rifuggiato, P. Rossi, E. Scomparin, J. Simpson, H. Schmieden, O. Schneider, N. Severijns, Th. Stöhlker, J. Stroth, H. Ströher, U. Thoma, S. Ulmer, C. A. Ur, Ch. Weinheimer, U. Wiedner, H. Wittig



NuPECC LRP 2017

<http://www.nupecc.org/lrp2016/Documents/lrp2017.pdf>

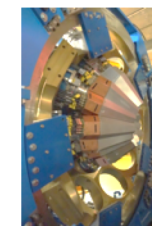
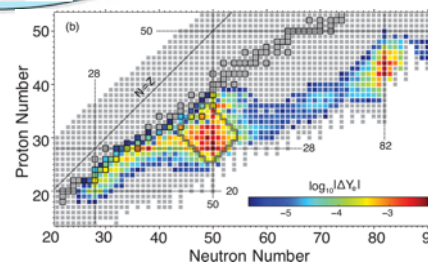
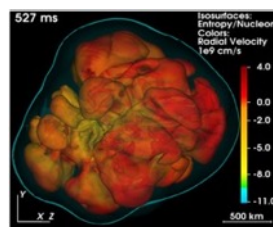
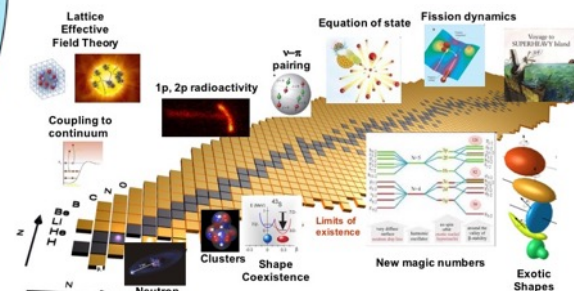
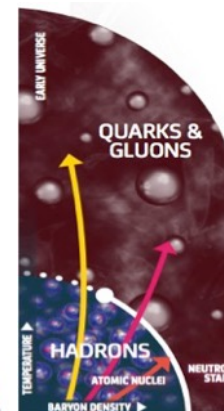
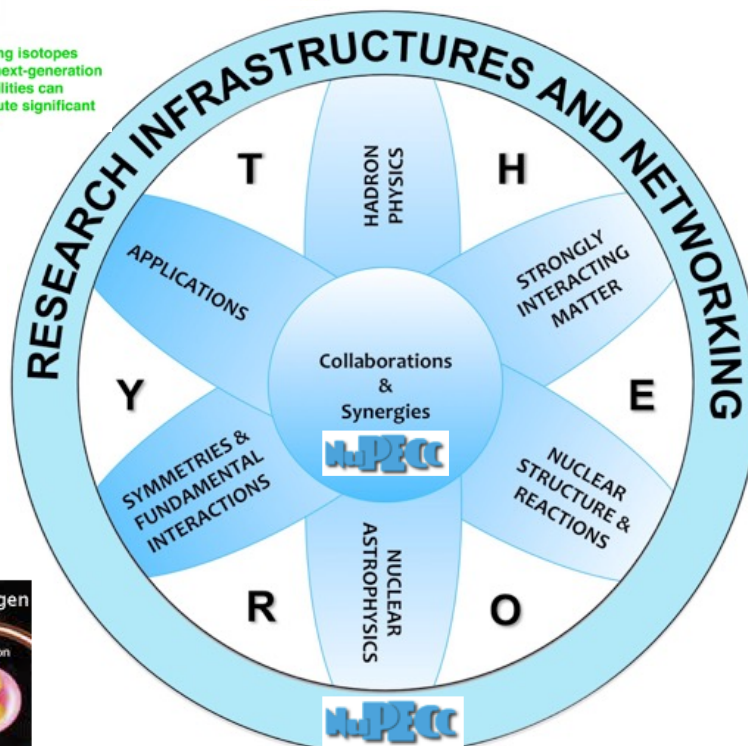
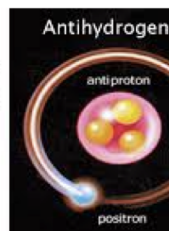
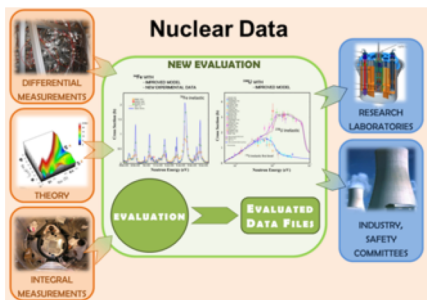
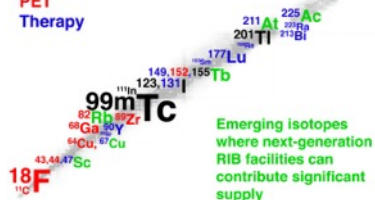
February 2022

http://nupecc.org/2017_LRP_Assessment_of_Implementation_final.pdf

NuPECC LRP 2024

Launched in May 2022 in Madrid

Nuclear medicine perspective



- **June 2021 – March 2022:** Assessment of the implementation of the 2017 LRP
http://nupecc.org/2017_LRP_Assessment_of_Implementation_final.pdf
- **Beginning of May 2022:** Nomination of the LRP Steering Committee chosen among the NuPECC representatives
- **May 2022:** Call for inputs from the community (new)
- **28th of October 2022:** Submission of community inputs CLOSED
- **October 2022 – November 2022:**
 - initial analysis of inputs by the Steering Committee;
 - definition of Thematical Working Groups of LRP by the Steering Committee;
 - Proposal for Conveners by the Steering Committee
- **1&2 Dec. 2022:** Conveners to be approved at the NuPECC meeting

Steering Committee of NuPECC LRP 2024

27 members

**NuPECC Members
Associated Members
and Observers**

Name	Country/Institution
Gert Aarts	UK/ECT*
Daniel Bemmerer	Germany
Diego Bettoni	Italy
Sandrine Courtin	France
Paolo Giubellino/Yvonne Leifels	Germany
Joaquin Gomez-Camacho	Spain
Paul Greenlees	Finland
Andreas Haungs	APPEC
Rolf-Dietmar Herzberg	UK
Dave Ireland	UK
Karl Jakobs	ECFA
Sissy Koerner	NuPECC
Marek Lewitowicz	NuPECC
Adam Maj	Poland
Ulf Meißner	Germany
Joachim Mnich	CERN
Eugenio Nappi	Italy
Lucia Popescu	Belgium
Patricia Roussel-Chomaz	France
Hervé Moutarde	France
Hiroyoshi Sakurai	Japan
Raimond Snellings	The Netherlands
Martin Venhart	Slovakia
Jelena Vesic	Slovenia
Vladimir Wagner	Czech Republic
Eberhard Widmann	Austria
Gail Dodge	NSAC/US

http://nupecc.org/?display=lrp2024/call_for_input

Bottom-up process!

CALL for Community Inputs:

With the intention of strengthening the bottom-up approach that has always played an important role in its LRPs, NuPECC is opening a call for inputs to the next LRP in form of short (**5 page**) documents describing the view of collaborations, experiments, or communities on the key topics for the **next 10 years** to be included in the upcoming LRP. We also **solicit new ideas** going beyond the topics considered in the LRP 2017 or exploring synergies with the particle physics and astroparticle physics communities and considering new developments such as gravitational waves and multi-messenger astronomy. Contributions related to **novel applications in cross disciplinary fields** are also welcome.

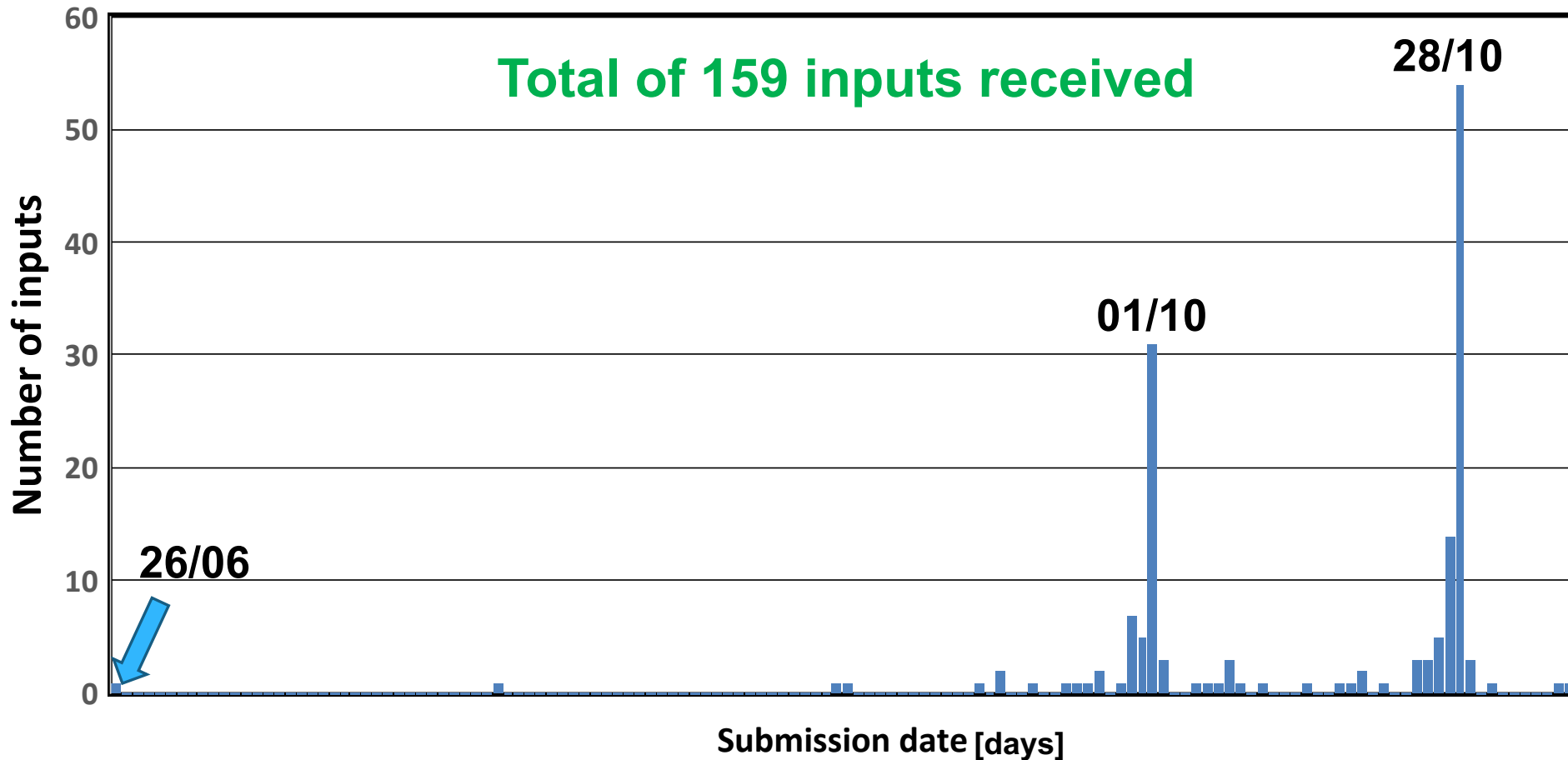
- Hadron Physics
- Strongly Interacting Matter
- Nuclear Structure and Reaction Dynamics
- Nuclear Astrophysics
- Symmetries and Fundamental Interactions
- Applications and Societal Benefits
- Infrastructures
- Theory
- Detectors
- Education
- Outreach
- Computing
- New topic

Initial Dead-Line: 1st of October 2022

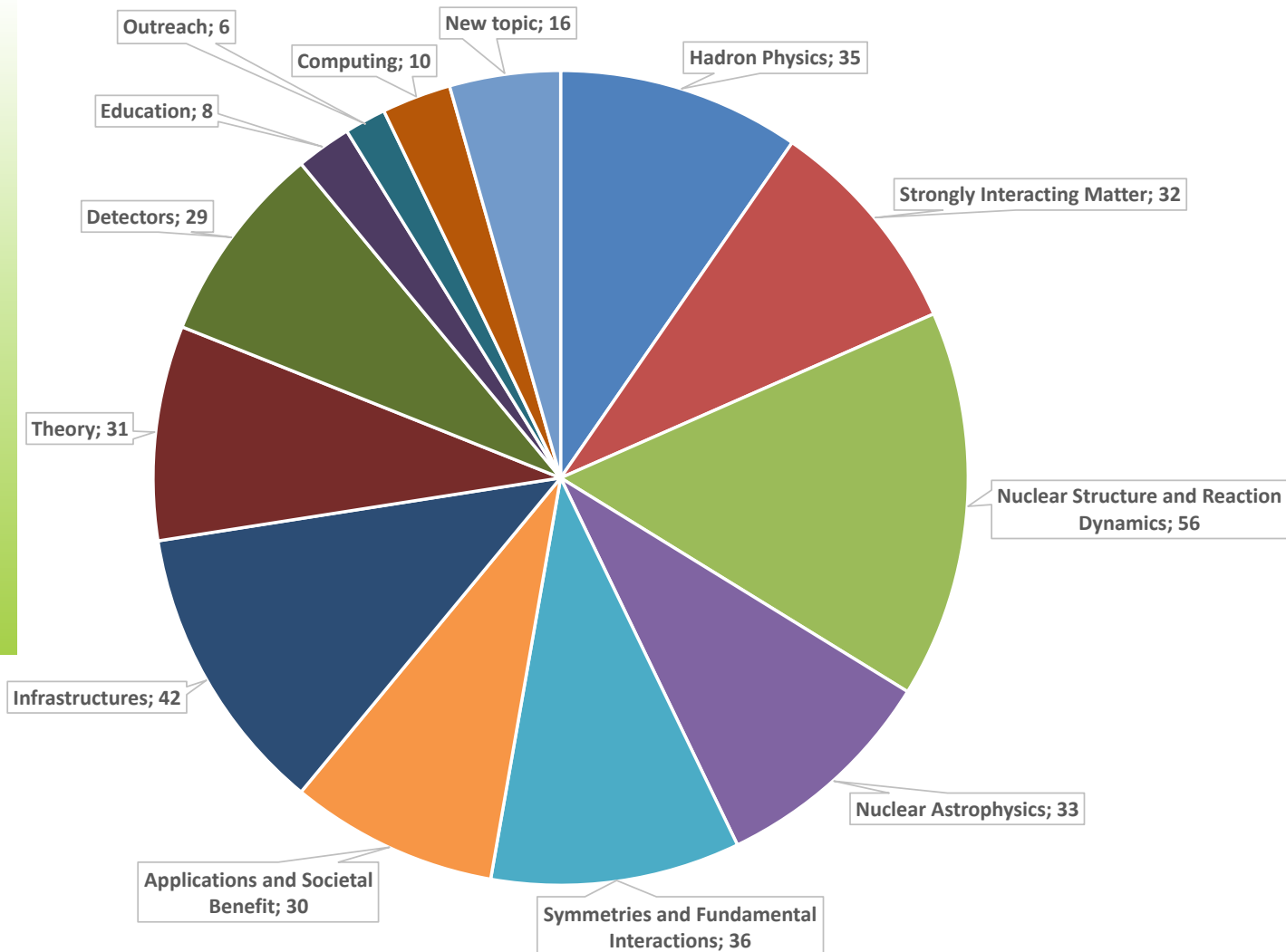
Final dead-line: 28th of October 2022

Call for inputs launched on 30th of May 2022

Submission dates for LRP inputs



Inputs per topic



LRP Inputs:

- 159 inputs submitted
- by > 400 individual scientists, collaborations, infrastructures, and research institutions in Europe

Initial analysis of inputs by the Steering Committee

- #3, #51, #52, #53 and #55 were excluded

All approved 154 inputs are now publicly available at:
<https://indico.ph.tum.de/event/7050/contributions/>

***Related announcement was sent to the community
on 7 December 2022***

Final list of Thematical Working Groups and sub-groups

- ❖ **Hadron Physics**
- ❖ **Strongly Interacting Matter at Extreme Conditions**
- ❖ **Nuclear Structure and Reaction Dynamics**
- ❖ **Nuclear Astrophysics**
- ❖ **Symmetries and Fundamental Interactions**
- ❖ **Infrastructures (present, under construction and emerging ideas)**
- ❖ **Applications and Societal Benefits**
- ❖ **Nuclear Physics Tools**
 - Detectors and Experimental Techniques
 - Computing, Machine Learning and Artificial Intelligence
- ❖ **Open Science and Data**
- ❖ **Nuclear Science – People and Society**
 - Training, Careers & Diversity
 - Education and Outreach

- *Sustainability of nuclear science should be emphasized in the work of all TWG*
- *All TWG have to appoint officially at least one early-career scientist to become its member*

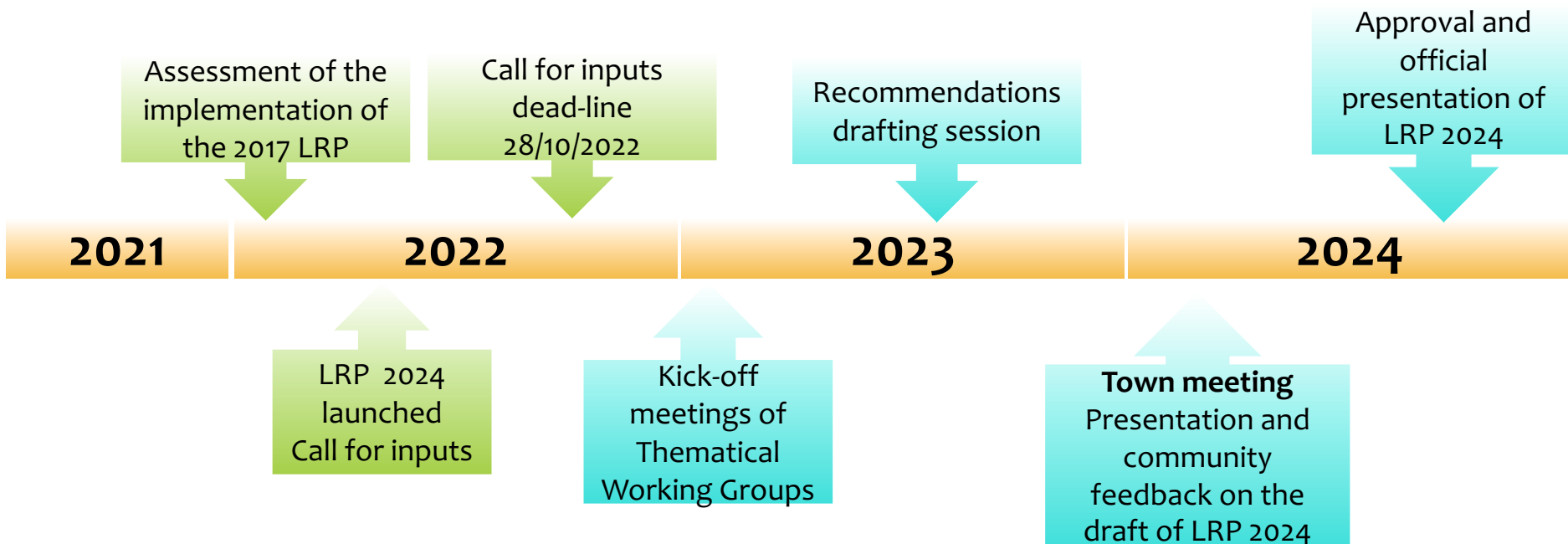
Theory/Exp.

TWG	Coordinators	Liaisons
Hadron Physics	Karin Schönning (Uppsala)	Diego Bettoni
	Constantia Alexandrou (CY)	Dave Ireland
Strongly Interacting Matter at Extreme Conditions	Laura Fabbietti (TUM)	Gert Aarts
	Urs Wiedemann (CERN)	Raimond Snellings
Nuclear Structure and Reaction Dynamics	Silvia Leoni (Univ. Milano)	Adam Maj
	Tomas Rodriguez(UCM)	Jelena Vesic
Nuclear Astrophysics	Anu Kankainen (JYFL)	Daniel Bemmerer
	Jordi Jose (Barcelona)	Sandrine Courtin
Symmetries and Fundamental Interactions	Pierre Delahaye (GANIL)	Eberhard Widmann
	Paolo Crivelli (ETH)	Klaus Kirch
Infrastructures	Wolfram Korten (CEA, Saclay)	Joaquin Gomez-Camacho
		Patricia Roussel-Chomaz
Applications and Societal Benefit	Thomas Cocolios (KU Leuven)	Lucia Popescu
	Charlot Vandevorode (GSI)	Vladimir Wagner
Nuclear Physics Tools Detectors and experimental techniques Computing, Machine Learning and Artificial Intelligence	Silvia Dalla Torre (INFN)	Eugenio Nappi
	Thorsten Kollegger (GSI/FAIR)	Hervé Moutarde
	Jana Guenther (U. Wuppertal)	
Open Science and Data	Antoine Lemasson (GANIL)	Marek Lewitowicz
Nuclear Science - People and Society Training, Careers & Diversity Education and Outreach	María García Borge (Madrid)	Rolf-Dietmar Herzberg
	Christian Diget (York)	

	Num.
	Coord.
Germany	4
France	3
Spain	3
Italy	2
Belgium	1
Sweden	1
Switzerland	1
CERN	1
Finland	1
UK	1
Cyprus	1
<i>Total</i>	<i>19</i>
Women	9
Men	10
<i>Total</i>	<i>19</i>

Next 6 months

- **December 2022 – January 2023**
 - Formation of the TWG by Coordinators
- **February 2023 – March 2023**
 - TWG Kick-off meetings
- **March 2023 – June 2023:**
 - analysis of community inputs by the WG, request of additional inputs if needed and interaction with the community
 - April 2023: Progress report by Conveners at the Steering Committee meeting
 - writing of a draft of each chapter



Please contribute to the activities of the Thematical Working Groups

Thank you for your attention