

Initiative for an EPPSU ECR White Paper

yHEP-KET Future Colliders Workshop
27th November 2024, DESY

JAN-HENDRIK ARLING (ECFA ECR)
ON BEHALF OF THE EPPSU ECR INPUT ORGANISERS



European Particle Physics Strategy Update

Scope of the Strategy Update

The aim is to develop a visionary and actionable plan that greatly advances knowledge in fundamental physics through the realisation of **CERN's next flagship project**. This plan should:

- Promote and value international collaboration
- Ensure Europe's continued leadership in fundamental physics
- The Strategy update should identify the *preferred option for the next collider*
- It should also outline prioritised *alternative options* to be pursued if the preferred plan proves infeasible or non-competitive.
- Additionally, the Strategy should consider *research beyond colliders*, emphasising interdisciplinary and diverse experimental approaches

EPPSU timeline and structure



9 topical WGs:

- EW/Higgs Physics
- Strong Interaction
- Flavor Physics
- BSM
- Neutrino Physics and Cosmic Messengers
- DM and Dark Sector
- Accelerator Science and Technology
- Instrumentation
- Computing

1 ECR scientific secretary for each WG
→ [ECFA ECR panel submitted list of nominations](#)

- Anyone can submit input to the strategy (31st of March)
 - Future collider communities, ECFA countries, collaborations, ...
 - **And Early Career Researchers (ECRs)** → White Paper
 - Focus on topics relevant to ECRs, not covered in topical WGs

Process towards ECR White Paper input to EPPSU

Initiated by ECFA ECR panel, but **Open to all European* ECRs[†]**

- **September 2024:** Preparatory Meetings for the EPPSU Input
 - Invited discussion between ECR committees by ECFA ECR panel
 - Brainstorming the process and explore initial ideas on potential topics to address
- **October 10th, 2024:** ECR session @ [3rd ECFA Workshop in Paris](#) (~55 participants)
 - Engage the ECR community and encourage contributions to the ECR White Paper
 - Live survey with participants to identify *key topics* for the White Paper
 - Establish *Working Groups* to address the most important issues
 - Outcome: ECRs need *stable funding* and *career certainty* for their professional growth, a *timely decision* on future colliders and a focus on *sustainability*
- **October-November 2024:** Regular WG meetings started
 - Kick-off meetings by organizers to start WG activities
 - Setting up structures to organize the different WGs (e.g. identifying conveners)
 - Organization mostly via Mattermost



*: Focus on ECRs employed in European institutes, but input beyond Europe appreciated

†: Non-permanent position or <10 years after PhD

Process towards ECR White Paper input to EPPSU

- **November 14th, 2024:** ECR Workshop on EPPSU @ CERN adjacent to the 115th Plenary ECFA meeting
 - Introductions from individual WGs, draft statements presentation and subsequent discussions
 - Parallel sessions for each WG
 - Discussion about scope of WG and next steps
 - An informal discussion open to all ECRs

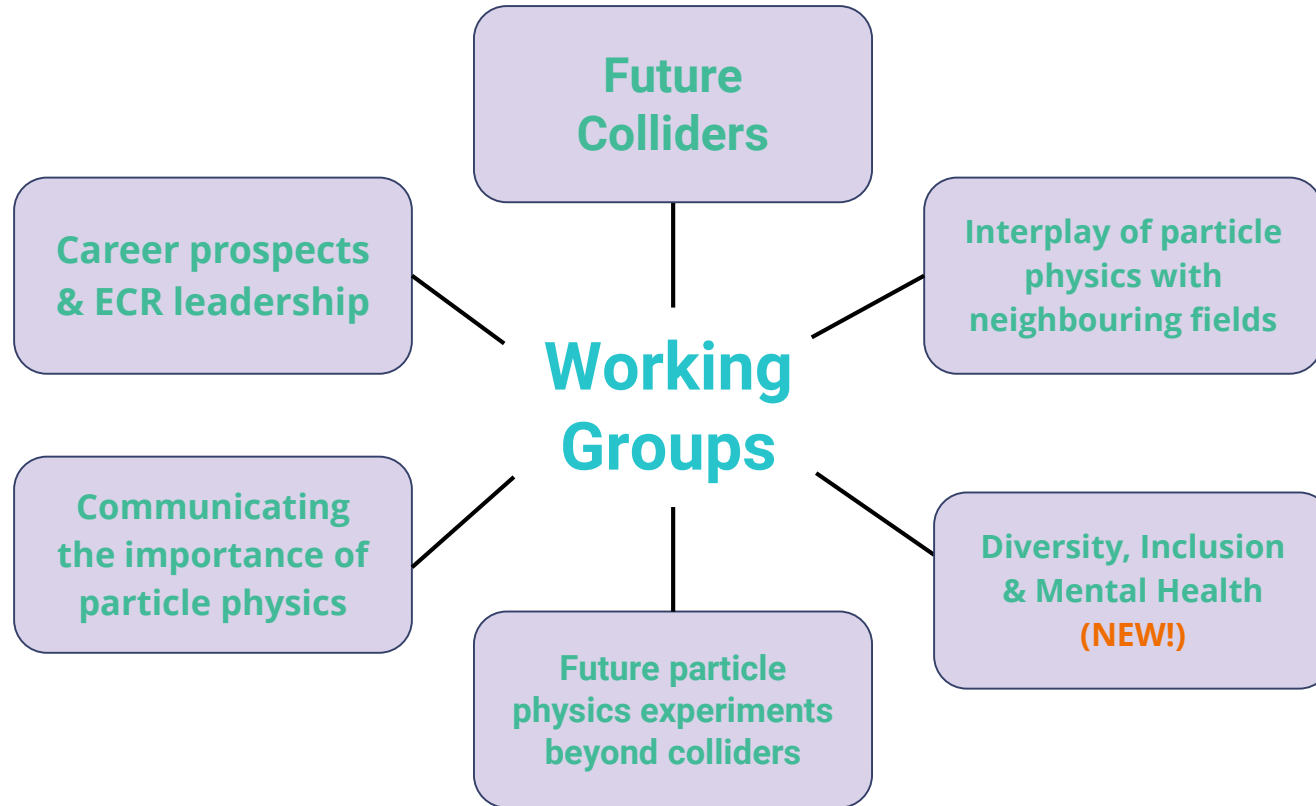
~40 people at CERN, ~60 people on Zoom

Introduction	Armin Ilg
40/S2-D01 - Salle Dirac, CERN	09:00 - 09:20
WG: Communicating the importance of particle physics	Abdelhamid Haddad
40/S2-D01 - Salle Dirac, CERN	09:20 - 09:50
WG: Future Colliders	Leonhard Reichenbach
40/S2-D01 - Salle Dirac, CERN	09:50 - 10:20
Workshop photo	
40/S2-D01 - Salle Dirac, CERN	10:20 - 10:25
Coffee break	
40/S2-D01 - Salle Dirac, CERN	10:25 - 10:50
WG: Future particle physics experiments beyond colliders	Dr Alexander Burgman et al.
40/S2-D01 - Salle Dirac, CERN	10:50 - 11:20
WG: Interplay with neighboring fields	Dr Alexander Burgman
40/S2-D01 - Salle Dirac, CERN	11:20 - 11:50
WG: Career prospects and ECR leadership	Jan Franciszek Klamka
40/S2-D01 - Salle Dirac, CERN	11:50 - 12:20
Discussion about scope of WGs	Emanuela Musumeci et al.
40/S2-D01 - Salle Dirac, CERN	12:20 - 12:40
Summary and next steps	Krzysztof Mekala
40/S2-D01 - Salle Dirac, CERN	12:40 - 13:00

Parallel WG Meetings	
CERN	14:00 - 16:00
Informal ECR discussion	Krzysztof Mekala et al.
40/S2-D01 - Salle Dirac, CERN	16:00 - 17:30
Open Networking in R1	
R1, CERN	17:30 - 19:00



Process towards ECR White Paper input to EPPSU



Overview of Working Groups

Future Colliders

Conveners: A. Ilg, A. Gallen, E. Musumeci, K. Mękała, L. Reichenbach, U. Einhaus

- **Input on Selection Criteria:** Define essential criteria for selecting a future collider
- **Proposal ranking:** Query preference of collider proposals and related questions
- **Significance:** Emphasize the importance of a future collider
- **Process transparency:** Advocate for a transparent selection and decision-making process

Future Particle Physics Experiments beyond Colliders

Conveners: A. Burgman, E. Long, M. Pfaff, E. Wallin

- **Prominent role:** Ensure non-collider experiments remain significant in Europe's particle physics agenda
- **ECR community forum to:**
 - Strengthen coherence and provide a collective voice for the community
 - Foster collaboration among non-collider projects

Interplay of Particle Physics with Neighboring Fields

Conveners: A. Burgman, A. Haddad

- **Cross-Disciplinary Exchange:** Diverse interactions to foster progress in particle physics
- **Support for Experts** transitioning between disciplines
- Facilitate **Cross-Field Idea and Tech Exchange**
- **Collaboration:** Emphasize cross-disciplinary efforts on shared research questions

Overview of Working Groups

Communicating the Importance of Particle Physics

Conveners: A. Haddad, J.-H. Arling

- **Valued Communication Skills:** Communication skills are as important as technical expertise in the field
- **Mentorship Program:** Linking senior researchers down-to high school students
- **Raising Awareness** of current work and future projects
- **Broad Outreach:** Target audiences from university students to the general public

Career Prospects and ECR Leadership

Conveners: C. Dimitriadis, L. Huhta, J. Klamka, E. Musumeci

- Attractive **career prospects for ECRs:**
 - Appealing career paths by providing clearer paths to permanent positions and enhancing job security
 - Training for versatile skills (academic and industry) plus mentorship programmes
 - Ease of Transition for engineers and technical experts into HEP
- **ECR leadership** with dedicated **funding:**
 - Inclusive decision-making to engage ECRs in key decisions and major events (provide funding)
 - Acknowledge ECR contributions and involve them in ESPPU preparations

Diversity, Inclusion & Mental Health

Conveners: E. Pacchi, A. Torda, L. Huhta

New WG just starting up!

Roadmap for White Paper Completion

- **Ongoing:** Online WG meetings throughout the process
 - Self-organized within WG and led by conveners
- **Mid-December 2024:** Draft of the White Paper sections
 - Contribution of individual WGs within skeleton paper structure
- **End of January 2025:** Completion of the first overall White Paper draft
 - Effort by WG conveners and organizers team
- **Mid-February 2025:** Circulation of White Paper in community
 - Consolidation of the first draft by all WGs
 - One-day symposium/workshop open to all ECRs
 - Feedback from External Advisors (Snowmass ECRs, previous ECFA ECRs, some selected seniors)
- **Mid-March 2025:** Endorsement and submission to EPPSU
 - Endorsement by ECFA ECR panel (and others) before formal submission to strategy group

How can you contribute?

- **Join Mattermost:** All discussions are taking place in the [ECRs for EPPSU 2024 Mattermost group](#)
 - Join the town square channel to keep informed about the process
 - Join WG channels if you are interested to become active
- **Join E-Group:** Information and access rights are managed via the epps-u-ecr@cern.ch mailing list
 - Check out the Indico pages from the events or the individual WGs
- **Voice your opinion:** Fill out the upcoming survey
 - A joint survey organized by all WGs is being prepared to be included in the White Paper
 - **Please fill it out and also spread the word about it**



Thanks for your attention!

ECFA ECR panel

Created as a follow-up to the [ECFA Early-Career Researchers response to the 2020 Update of the European Strategy for Particle Physics](#) (ad-hoc, not a panel)

*[...] to discuss **all aspects** that contribute in a broad sense to the **future of the research field of particle physics** [...]*

Aiming to represent the European early-career particle physics community

- From PhD students to young assistant professors
- Theoreticians, phenomenologists, experimentalists, ...
- 3 members per country (+1 if LDG lab in country)
- Organization Committee: Marko Pesut, Jan-Hendrik Arling, Arnau Moranco Tarda
- 5 delegates in Plenary ECFA, 1 delegate in Restricted ECFA
 - Staying: **Andrea Garcia Alonso, Patrick Dougan**
 - New: **Bruno Alves (RECFA), Kevin Urquía, Magdalena Vande Voorde**
 - Stepping down: Lydia Brenner (RECFA), A.I, Holly Pacey