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# Report from ECFA Early Career Researcher Panel

115th Plenary ECFA – open session  
CERN

Armin Ilg

on behalf of the ECFA ECR Panel

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**ECFA**

European Committee for Future Accelerators



# 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 Morancho 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

# Future Colliders WG

# From ECFA to national communities

- Future colliders for Early-Career Researchers event in September 2023
  - Early-Career Researchers' Perspective on Future Colliders ([arXiv:2407.01852](https://arxiv.org/abs/2407.01852))
- Follow up with national, in-person events on future colliders, directing discussions into the ECFA countries focusing on country dependent issues
  - Also inspired by [UK Future Collider town-hall](#)
- Came up with [blueprint](#) for national Future Colliders for Early-Career Researchers events
  - [Belgium+Netherlands](#), [Nordic countries](#), [CERN](#), [Austria](#), [Czech Republic](#), [Czech Republic+Slovakia](#), [France](#), [Germany](#), [Italy](#) so far
  - [CERN](#) (22.11), Switzerland (4.02) and more planned!

Early-career researchers perspective on future colliders

The ECFA Early Career Researcher's (ECR) Panel

July 17, 2024

Since its inception, the Large Hadron Collider (LHC) has significantly advanced particle physics and will continue to do so in the context of the High Luminosity LHC (HL-LHC) program to collect  $3000 \text{ fb}^{-1}$  by the end of 2041. The particle physics community worldwide is discussing which future collider could follow in the footsteps of the LHC and uncover yet inaccessible phenomena.

To foster the discussion on this important topic among the young particle physicist community, the Early-Career Researchers (ECR) panel of the European Committee for Future Colliders (ECFA) has organized the *Future Colliders for Early-Career Researchers* workshop at CERN in September 2023. This document aims to summarise this event and present the ECR perspective, outline the key questions that came up during the discussions, and explore how ECRs can influence the decision process of future colliders community and beyond.

# Towards an EPPSU ECR White Paper input

# 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 us! → ECR 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<sup>†</sup>

- Preparatory meetings within ECFA ECR panel and with other ECR representatives
  - Discuss process, first ideas on possible topics to address
- ECR sessions @ 3rd ECFA Workshop
  - Bring ECR community together, rally people to contribute to ECR White Paper
  - Define topics to address in ECR White Paper → Form WGs to address most important topics

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

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

# Highlights of Paris event

Number of participants:  
~ 55 in lunch and evening sessions

Some relevant statements:

- ECRs need...
  - **stable funding** and career **certainty** to support their professional development.
  - a **decision on future colliders** to be made as soon as possible.
  - sustainability to be taken into consideration.

Live survey findings:

- “ECR opinions and concerns taken into account” vs. “ECRs adequately represented in FC decision-making”
- Importance of an ECR White Paper

Some relevant questions:

- (How to) untangle next collider (i.e Higgs factory) decision from further downstream decisions?
- (How to) participate in potential CEPC?
- Role of sustainability?



# Working groups established\*

- Future colliders (incl. choice, priorities, timeline, sustainability, etc.)
  - Conveners: Jason Aebischer, Uli Einhaus, Axel Gallen, Armin Ilg, Krzysztof Mekala, Emanuela Musumeci, Leonhard Reichenbach
- Future particle physics experiments beyond colliders (added after Paris)
  - Conveners: Alexander Burgman, Elizabeth Sarah Long, Marvin Pfaff, Erik Wallin
- Communicating the importance of particle physics (present and future)
  - Conveners: Abdelhamid Haddad, Jan-Hendrik Arling
- Career prospects and ECR leadership (not only on future colliders)
  - Conveners: Christina Dimitriadi, Laura Huhta, Jan Klamka, Emanuela Musumeci
- Interplay of particle physics with neighbouring fields
  - Conveners: Alexander Burgman, Abdelhamid Haddad

Join [eppsu-ecr@cern.ch](mailto:eppsu-ecr@cern.ch) and *ECRs for EPPSU 2024* [Mattermost channel](#)

Join the WG channels

Some WGs definitely would benefit from more conveners!

Had 2-3 meetings per WG since Paris event

\*: More WGs can be added if there is interest!

# Process towards ECR White Paper input to EPPSU

- ECR Workshop on the European Particle Physics Strategy
  - Adjacent to (Open) Plenary ECFA meeting at CERN ← **You are here**

# Agenda of ECR Workshop on the European Particle Physics Strategy

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

13:00	<b>Lunch break</b> R1, CERN 13:00 - 14:00		
14:00	<b>WG meeting: Future particle physics experiments beyond colliders</b> Dr Alexander Burgman et al. 4/R-050, CERN 14:00 - 15:00	<b>WG meeting: Future Colliders</b> Armin Ilg et al. 40/S2-D01 - Salle Dirac, CERN 14:00 - 15:00	
15:00	<b>WG meeting: Career prospects and ECR leadership</b> Christina Dimitriadi et al. 40/S2-D01 - Salle Dirac, CERN 15:00 - 16:00	<b>WG meeting: Communicating the importance of particle physics</b> Abdelhamid Haddad et al. Zoom only 15:00 - 16:00	<b>WG meeting: Interplay with neighboring fields</b> Abdelhamid Haddad et al. 4/R-050, CERN 15:00 - 16:00
16:00	<b>Informal ECR discussion</b> Krzysztof Mekala et al. 40/S2-D01 - Salle Dirac, CERN 16:00 - 17:30		
17:00	<b>Open Networking in R1</b> R1, CERN 17:30 - 19:00		

# ECR Workshop on the European Particle Physics Strategy – impressions

- Way too many points to be addressed here, need time to digest all the discussions
  - [\(Preliminary\) summary slides](#)
  - 10 pages of minutes!
- Up to 30 people at CERN, 56 people on Zoom
  - Great engagement, plenty of interesting discussions
  - Received input from ECRs that didn't contribute previously
- Next step: Each WG to prepare a skeleton of the White Paper input, merge them, and add topics not addressed so far



# Process towards ECR White Paper input to EPPSU

- ECR Workshop on the European Particle Physics Strategy
  - Adjacent to (Open) Plenary ECFA meeting at CERN ←You are here
- Continue online **WG meetings throughout process**
- White paper drafting
  - Mid-December: Draft of **White Paper sections by WGs**, lead by WG conveners
  - End of January: **First overall White Paper draft by WG conveners**
  - Mid-February: Consolidation of first overall White Paper draft by all WGs
- White paper feedback and consolidation
  - Mid-February: One-day **symposium/workshop** similar to today, **open again to all ECRs!**
  - From external advisors: Snowmass ECRs, ECRs from last strategy, some selected seniors
- Mid-March: Endorsement of White Paper by ECFA ECR panel, submission to EPPSU
- Follow the EPPSU and continue to voice interests of ECRs
  - e.g. at Open Symposium in Venice, 23-27. June 2025
  - Benefit from ECR scientific secretaries in Strategy group

# **Career Prospects and Diversity in Physics Programme WG**

# Career Prospects and Diversity in Physics Programme survey

Designed a survey to collect information about...

- The impact of the collaboration size on ECRs
- Assess the career prospects of ECRs: how can our panel help, what are the main problems?

Circulated to ECR community 📩 **760 responses!**

- ~ 1/3 of the respondents are Mediterranean, ~1/3 from Northern Europe and 1/5 from Central and Eastern Europe
- ~50% on 36–47 months or 24–35 months contracts
- Almost 1/2 aged between 26 and 30

Responses have been analysed and written report put on arXiv ([arXiv:2404.02074](https://arxiv.org/abs/2404.02074))

Extensively discussed [at 114th PECFA meeting by P. Dougan and A. Garcia Alonso](#)

Results of the 2022 ECFA Early-Career Researchers Panel survey on career prospects and diversity

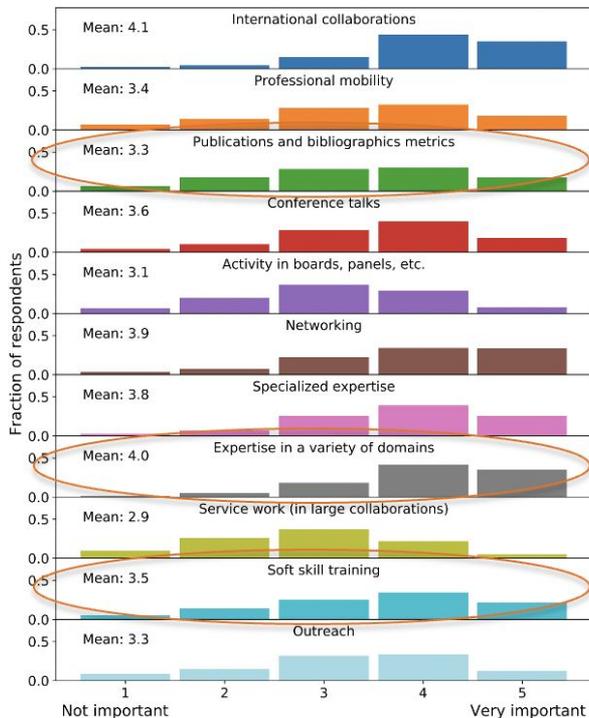
The ECFA Early-Career Researchers Panel: Career Prospects and Diversity in Physics Programmes Working Groups

April 3, 2024

This document presents the outcomes of a comprehensive survey conducted among early career researchers (ECRs) in academic particle physics. Running from September 24, 2022, to March 3, 2023, the survey gathered responses from 759 ECRs employed in 39 countries. The study aimed to gain insights into the career prospects and experiences of ECRs while also delving into diversity and sociological aspects within particle physics research. The survey results are presented in a manner consistent with the survey choices. The document offers insights for the particle physics community, and provides a set of recommendations for enhancing career prospects, fostering diversity, and addressing sociological dimensions within this field.

# Career Prospects and Diversity in Physics Programme survey

What importance do YOU PERSONALLY attribute to the following items for a high-quality researcher?



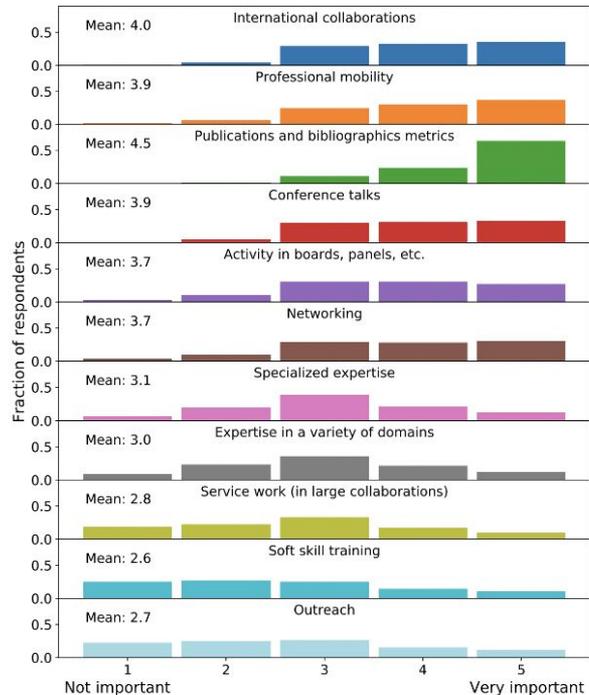
What do ECRs *think* is:

needed to be a good researcher

versus

needed for a successful career?

From your point of view, what importance does the SCIENTIFIC COMMUNITY attribute to the following items for a successful career in academia?



Survey will be **crucial input** to *Career prospects and ECR leadership WG* of **EPPSU ECR White Paper**

# Software and Machine Learning WG

# Software and Machine Learning WG

- Survey preparation finished ~June this year, but technical problems with circulation
- Rebuilt survey with new service and circulate next year
  - Results for next PECFA hopefully!

# ECFA ECR panel

## Fourth anniversary of ECFA ECR panel creation in January 2025



- Panel has self-organised and is active with several working groups
  - And leading/organising the ECR input to the EPPSU
- Last representatives from the very beginning now leaving (second two-year term)
- A lot of engagement with the ECR community
  - E.g. through national *Future colliders for ECRs* events
  - But more is needed, many not aware of our panel (and also not of ECFA in general)

## Keep in touch with us

- [Our webpage](#) to find your country ECR representative
- [ecfa-ecr-organisers@cern.ch](mailto:ecfa-ecr-organisers@cern.ch)
- [Subscribe](#) to ecfa-ecr-announcements e-group to get notified about our activities!

**Thanks!**