

# Snowmass Early Career

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*DPF Executive Committee Early Career Member*



Snowmass Theory Frontier Conference @ KITP

23 February 2022

# Why Snowmass?



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“Snowmass will define the **most important questions for the field of particle physics** and identify promising opportunities to address them. The P5, Particle Physics Project Prioritization Panel, will take the scientific input from Snowmass and develop a strategic plan for U.S. particle physics that can be **executed over a 10 year timescale**, in the context of a **20-year global vision for the field.**”

[\[snowmass21.org\]](https://snowmass21.org)

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## → **Crucial to involve early career community:**

- Doing physics: generation of ideas, studies, and white papers
- Active discussion of issues/topics relevant to EC experience & build a community accordingly
- Educate the next generation

# Overview of Snowmass Early Career (SEC)

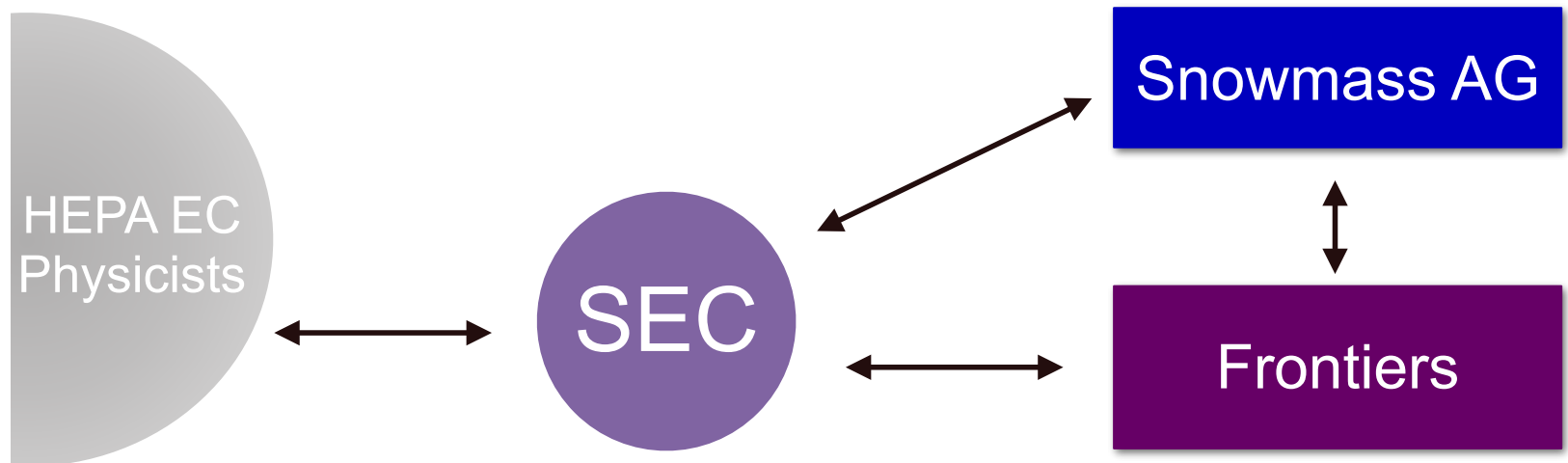
- **Who we are:** early career (EC) physicists brought together by Snowmass process
  - Historically “Snowmass Young”
  - Building on a huge amount of EC interest during original nomination call (April 2020)
- “Early Career” = ~10 years from highest degree guideline, including engineers/technicians; *guideline not a hard rule!*
- Two arms of the organization: [\[Early Career Memo\]](#)

**Snowmass  
Coordination:**  
collaboration of  
EC liaisons for  
each frontier

**Core  
Initiatives:**  
Snowmass-  
independent  
offshoot

# Snowmass Early Career Coordination

- **Structure:** ~1-2 early career liaisons for each frontier (rotating & elected by peers) [[list](#)]
  - **Roles**
    - Engage early career members with physics activities of frontiers and push key SEC initiatives within frontiers
    - Liaise with frontier leadership to disseminate relevant information to early career community
    - Act as representation for early career community to frontier leadership, by passing on issues/feedback as needed
- ➔ SEC/community maintained list of [EC LOIs](#) !



# SEC Core Initiatives

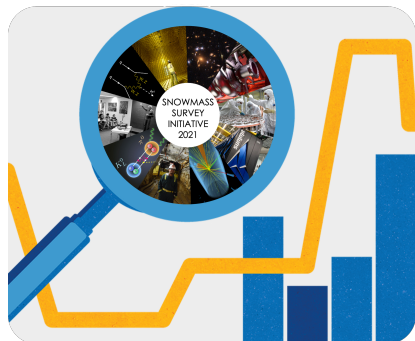
- **Structure:**

1. Survey
2. Diversity, Equity, & Inclusion
3. Inreach
4. Long-Term Organization

- **Purpose:**

- Connect and serve cross-frontier Snowmass community
- Organize/advertise resources & make recommendations on key issues for EC physicists
- Segue strong Snowmass EC enthusiasm into long term cross-subfield structure for high energy particle and astrophysics (HEPA)
  - Be prepared for *next* Snowmass process!

# Core Initiatives Highlights

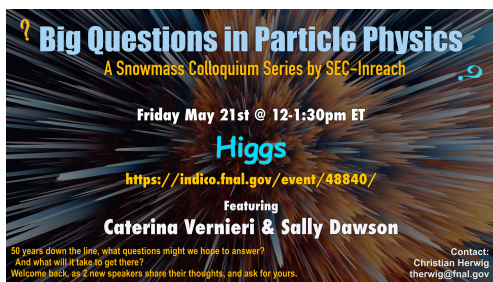


## Survey

- Collecting opinions/experiences on careers, physics outlook, workplace culture, visa policies, COVID-19, & more [[FNAL News](#)]
- Wrapped in August, synthesized results to come
- [New survey from Snowmass Particle Physics Education group](#) !

## Inreach

- Very successful & well-attended “Big Questions” Colloquium Series
- Ex. Higgs physics, neutrino low energy excess, Muon g-2, future colliders, dark matter [[YouTube channel](#)]



## DEI

- Co-organizing DEI Town Halls with Community Engagement Frontier
  - June 2021: “[Navigating Mentor/Mentee Relationship](#)”
  - Sept 2021: “[Supporting Early Career People in Academia](#)”



Dr. Marcela Hernandez



Dr. Cagliyan Kurdak



Dr. Brooke Russell



Dr. Sara Simon



Dr. Sweeney Windchief

## LTO

- ➔ [LOI](#) submitted in Comm. Frontier & white paper underway
- ➔ Continuing “Big Questions” with a model for highlighting EC issues/topics/speakers



# Why Get Involved?

## ✓ Learn more physics:

- Chance to learn about topics beyond thesis/primary work

## ✓ Build your resume:

- Snowmass work is a great extra chance to give talks at workshops & add to CV
- White Paper review process experience

## ✓ Networking:

- Entire US community (and beyond) is here! Connect with potential future collaborators/employers/students/postdocs, meet peers and build EC community



T. Lewis



A. Roepe



K. Engel



J. Barrow



S. Simon



F. Psihas

# Early Career Theory Highlights

- Early career members involved in LOIs on at least 8 TF subgroups!
- EC members of TF are cross-liaisons to other frontiers, eg. Neutrino (J. Geherlein), Cosmic (B. Shakya), Rare Processes (Y.D. Tsai), Computation (S. Gardiner)

→ Solicited white paper from Elor, Harz, Ipek, and Shakya: all < 10 years from PhD & based at non-US institutions!



## Snowmass Letter of Interest: Leptonic Sum Rules

Julia Geherlein,<sup>1,\*</sup> Silvia Pascoli,<sup>2</sup> Serguey Petcov,<sup>3,4</sup> Martin Spinrath,<sup>5</sup> and Arsenii Titov<sup>6</sup>

## New Ideas in Baryogenesis

Editors: Gilly Elor,<sup>a</sup> Julia Harz,<sup>b</sup> Seyda Ipek,<sup>c</sup> Bibhushan Shakya<sup>d</sup>

<sup>a</sup>PRISMA+ Cluster of Excellence & Mainz Institute for Theoretical Physics  
Johannes Gutenberg University, 55099 Mainz, Germany

<sup>b</sup>Physik Department T70, Technische Universität München, James-Frank-Straße 1, D-85748 Garching, Germany

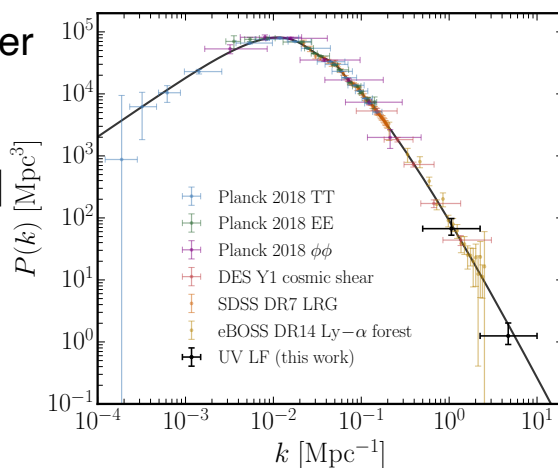
<sup>c</sup>Department of Physics, Carleton University, Ottawa, ON K1S 5B6, Canada

<sup>d</sup>Deutsches Elektronen-Synchrotron DESY, Notkestrasse 85, 22607 Hamburg, Germany

## “Indirect Dark-matter detection”

J. Muñoz,

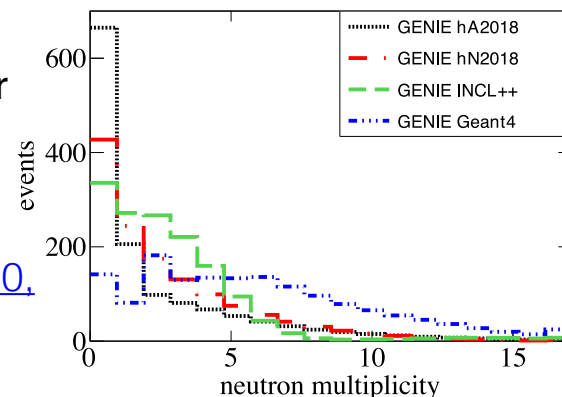
[[arXiv:2110.13161](https://arxiv.org/abs/2110.13161)]



## “Low Energy Physics in LAr (GENIEv3)”

S. Gardiner,

[[Eur. Phys. J. Spec. Top. 230, 4449](https://arxiv.org/abs/2007.04449)]



## “Lattice QCD Calculations of Parton Physics”

Y. Zhao, [[arXiv:2202.07193](https://arxiv.org/abs/2202.07193)]

# Conclusions

- Very motivated early career community ready for Snowmass & more!
  - Contact with each frontier to facilitate EC participation
  - Four **Core Initiatives** developing comprehensive EC infrastructure
  - Long term organization plans under discussion with broad community feedback
- **Get involved!**
  - New & improved twiki: <https://snowmass21.org/start/young>
  - [YouTube channel](#) (recordings of all start up events)
  - [#welcome-to-snowmass](#) (how/where to start)
  - [#snowmass-young](#) (general EC announcements)
  - [Snowmass EC calendar](#)

## Theory Frontier Early Career Contacts

- Sam Homiller (Stony Brook, [shomiller@g.harvard.edu](mailto:shomiller@g.harvard.edu))
- Seth Koren (U Chicago, [sethk@uchicago.edu](mailto:sethk@uchicago.edu))
- Soubhik Kumar (Maryland, [SoubhikKumar@lbl.gov](mailto:SoubhikKumar@lbl.gov))
- Robert McGehee (U Mich, [robbiemcgehee@gmail.com](mailto:robbiemcgehee@gmail.com))
- Yu-Dai Tsai (UC Irvine, [yt444@cornell.edu](mailto:yt444@cornell.edu))

# Backup

# Long-Term Organization

- Preparing to segue existing structure towards a long-term early career organization
  - [LOI](#) submitted on this topic in Community Engagement Frontier
- **Goals:**
  - Foster a welcoming, inclusive, collaborative, multidisciplinary EC community
  - Act as representative group for early career community across HEP/astrophysics
  - Act as advisory body for APS/experimental leadership on early career issues
  - Provide EC structure to future Snowmass processes
  - Networking opportunities across institutions, experiments, academic levels
- **Slack:** [#sec-longterm-loi](#)

# Snowmass Slack & Emails

1. Send an e-mail message to [listserv@fnal.gov](mailto:listserv@fnal.gov), leave the subject line blank, and Type “SUBSCRIBE SNOWMASS FIRSTNAME LASTNAME” (without the quotation marks) in the body of your message. This will also get you an invite to join the Snowmass slack.
2. Join the “Snowmass Young” mailing list by emailing to [listserv@fnal.gov](mailto:listserv@fnal.gov) with the body of the message “Subscribe snowmass-young FIRSTNAME LASTNAME”.
3. Join the [#welcome-to-snowmass](#) and [#snowmass-young](#) slack channels on the Snowmass slack space