Hall C Business Meeting

Hall C SC: Marie Boer, Bill Henry (Secretary), Tanja Horn (Chair), Stephen Kay, Pete Markowitz, Arun Tadepalli

2023 Hall C Community

Please check the Hall C User database for accuracy. For add/edits please email: Mark Jones (jones@jlab.org)

Jefferson Lab

Welcome Tanja Horn | SIGN OUT

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131 members currently listed

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HALL C Collaboration Membership

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(indicates admin)

Member Name	Institution	Position	Preferred Email	ORCID	Experimental Involvement	New Member Nominations	Recently completed PhD supervisions	Last Modified	
Daniel Abrams	University of Virginia, Charlottesville, VA (USA / VA)	Student	abrams@jlab.org					12/1/2022	Edit Info
Devi Adhikari	Virginia Polytechnic Inst. & State Univ., Blacksburg, VA (USA / VA)	Postdoc	adhidevi@jlab.org		MOLLER			12/2/2022	Edit Info
Abdellah Ahmidouch	North Carolina Ag. and Tech. St. Univ. Greensboro, NC (USA / NC)	Faculty	abdellah@jlab.org					10/3/2022	Edit Info
Takeru Akiyama	Tohoku University, Sendai, Japan (JAPAN)	Student	akiyama@jlab.org		JLab hypernuclear collaboration (E12-15-008, E12-19-002, E12-20-013)			12/13/2022	Edit Info
Mohammad Ali	New Mexico State University (USA / NM)	Student	mjaradat@jlab.org	0000-0003-1487-7615				12/1/2022	Edit Info
Darko Androic	University of Zagreb, Zagreb, Croatia (CROATIA)	Faculty	androic@jlab.org					12/6/2022	Edit Info
Konrad Aniol	California State University, Los Angeles (USA / CA)	Faculty	aniol@jlab.org					10/3/2022	Edit Info
Whitney Armstrong	Argonne National Laboratory, Argonne, IL (USA / IL)	Staff Scientist	warmstrong@anl.gov		CSV/SIDIS		Shuo Jia - November 2022	1/13/2023	Edit Info
John Arrington	Lawrence Berkeley Laboratory, Berkeley, CA (USA / CA)	Research Scientist	johna@jlab.org	0000-0002-0702-1328		Nathaly Santiesteban (UNH) Tyler Hague (LBNL)		12/8/2022	Edit Info

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User Group

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General Information

The Hall C User community is a relatively open organization including a number of experimental collaborations. The Hall C User Group facilitates communication and collaboration within the community, and also provides a forum for discussion for advancement of Hall C science and technology. The Hall C User community is represented and receives guidance from an elected Steering Committee Board.

Archive of historical newsletters.

Hall C email lists

Hall C This is the general email list for any Hall C related information.

Hall C running. This is the general email list for information on any running Hall C experiments.

Hall C Analysis Software

Hall C Working Groups

There are presently three Hall C Working Groups (WGs) - all formed in November/December 2022. These WGs oversee a specific project or to give advice on a specific theme of relevance to Hall C. Any member of the JLab community may participate in these WGs. To join contact the WG conveners and/or join the Hall C or WG specific mailing lists. Please see the links below for further details on meeting calendars, past meeting archives, etc. For more information on Hall C WGs in general please see the bylaws.

Spectrometer Performance and Future Upgrades

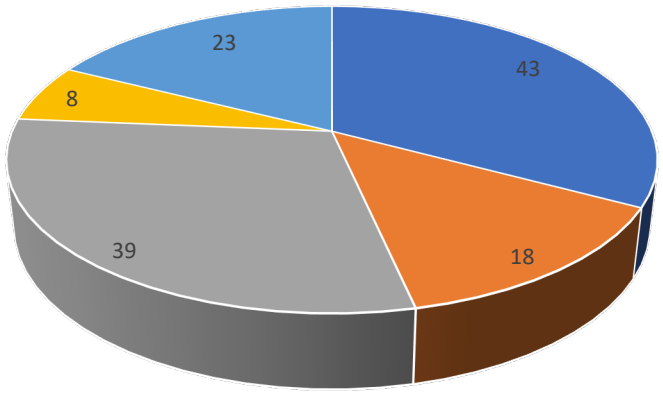
Artificial Intelligence/Machine Learning for Hall C

Future Science

Information on inactive Working Groups SHMS Detector Working Groups (pre-2017)

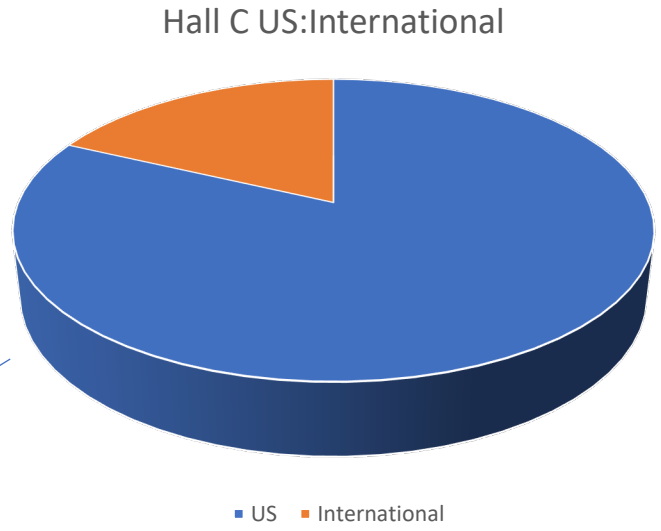
User Board

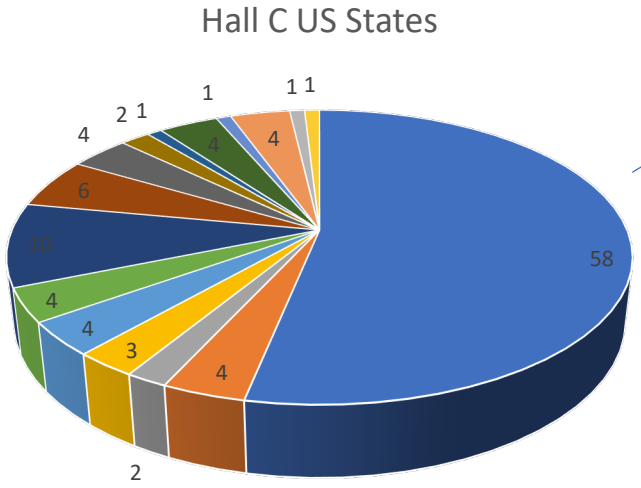
The SHMS-HMS User Group was formally started at the 2009 Hall C summer workshop when the initial user board was appointed by the Hall C leader. Members were appointed with staggered terms. As the terms of the initial board expire, elections are held by the user group to replace board members according to the Bylaws.

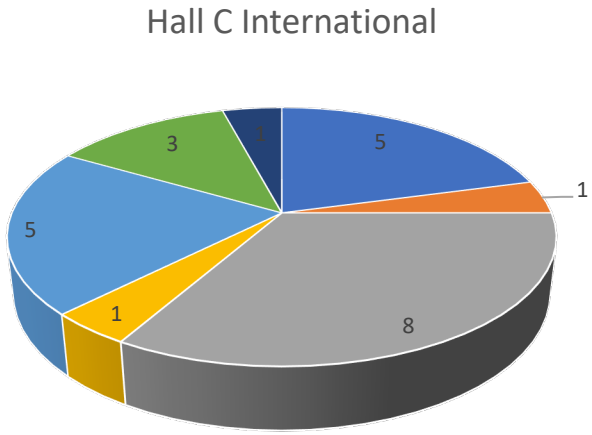


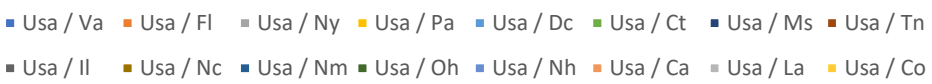
New Hall C User Wiki Pages

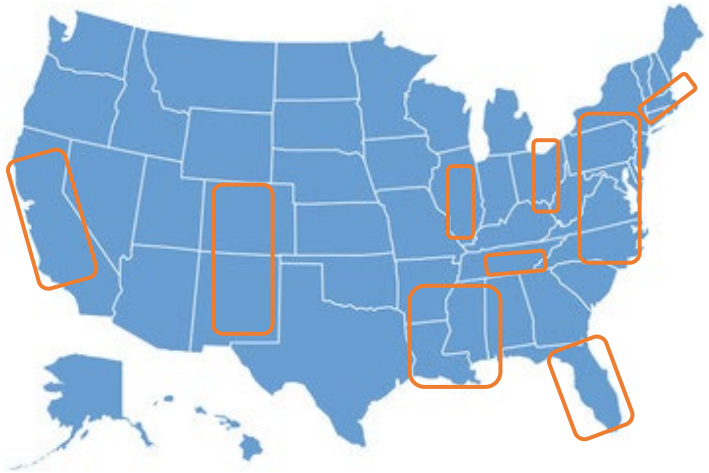
2023 Hall C Community

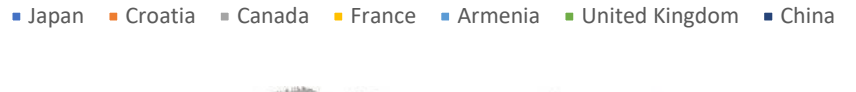


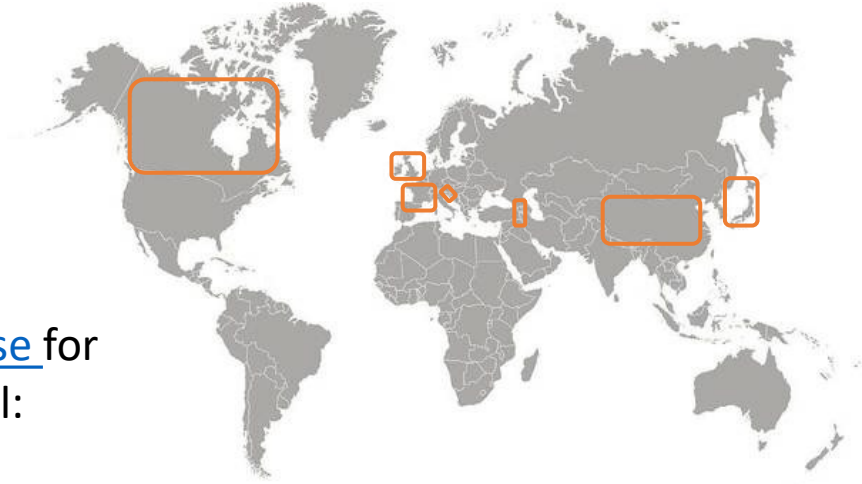












Please check the Hall C User database for accuracy. For additional please email: Mark Jones (jones@jlab.org)

Hall C Bylaws Revision and Code of Conduct

Revised bylaws (from 2008 version) / What is new

- Updated the language and scope of the Organization / Hall C User's Group

- Include all Hall C related work in our mission (hardware, software, future…)

- Membership: Vote to admit or terminate members, institution contact person(s) + Annual audit for new members

- Added Working Groups

- Updated the role of the User Board and election rules

- Organization conduct: “good standing” and code of conduct

Code of Conduct (new appendix of bylaws): includes definitions based on winter meeting recommendations

Please read and comment before the vote:

https://hallcweb.jlab.org/wiki/images/f/f4/HallCByLawsCoC_final.pdf

Hall C Working Groups - Overview

WORKING GROUPS (WG)

Working Groups will be formed as deemed appropriate by the UB to **oversee a specific project or to give advice on a specific theme of relevance to the Organization**. Members may also petition the UB for the creation of a WG. **Any member is eligible for membership in one or more WGs**. Each WG shall elect a Chair, who is responsible for the WG under the general direction of the UB. Each WG is expected to report periodically to the UB and the general membership on its activities and progress. WGs which have been inactive for two or more years may be disbanded by the UB.

Three plus one Hall C Working Groups

1) Spectrometer Performance and Future Upgrades

- **Convener**: Stephen Kay (U. York)
- Questions for users:
  - Analysis challenges and solutions
  - What are you working on
  - What would you like the focus of these meetings to be
- Topics could include Tracking, FADC mode 10, Acceptance, PID, boiling, ……..
- Meeting topics should result in Tech Notes and documentation

2) AI/ML in Hall C – Foster excitement about AI/ML applications and build momentum

- **Conveners/contacts**: Cristiano Fanelli (W&M), Tanja Horn (CUA)
- Two focus areas
  - The major goal is to identify possible bottlenecks in the Hall C science output workflow and to create a priority list of applications where AI/ML may assist and optimize this workflow, and on what time scale, and the physics impact
  - Also, specific implementations and AI/ML tools for Hall C, e.g., DC correlations between hits/rates and tracks and parameterizing the background rate in single-arm experiments at small angles
- A Round table discussion cross cutting across experimental halls may follow

3) Hall C futures

- **Conveners/contacts**: Ed Kinney (U. Colorado), Pete Markowitz (FIU)
- Continues the efforts of the Hall C Futures task force

4) Experiment/Theory Interface NEW

- **Conveners/contacts:** Marie Boer (VTech), Christian Weiss (JLab)

Spectrometer Performance and Future Upgrades WG

- Main initiative and feature – Quarterly Analysis Meetings (QAM)
  - Meetings to discuss experimental analysis, identify common problems/solutions relating to Hall C spectrometers/detectors
  - Want to ensure that important information on spectrometer/detector performance isn't "siloed off" in different analyses
  - Reminder that focus of Hall C Winter and Summer meetings differs
    - Use QAM to share and discuss your work and updates more frequently!
- Several successful and productive meetings so far
- New initiatives/plans welcome!

Spectrometer Performance and Future Upgrades WG

- QAM slides, notes and recordings available on the docDB
  - Quarterly Meeting I
  - Quarterly Meeting II
  - Quarterly Meeting III
- 4th meeting coming up soon
  - 8th of August @ 13:00 EDT – Tentative date
  - Just before the start of NPS running
  - Speakers/topics needed for the next meeting!
    - BPM calibrations?
    - Would be great to hear from as many experiments as possible
    - Get in touch! – stephen.kay@york.ac.uk

AI/ML in Hall C WG

Identify unique challenges for Hall C where AI/ML may help and validate AI/ML tools with existing data

- ❑ Hall C is the precision measurements hall at JLab providing pillars of measurements to constrain physics quantities like Parton Distribution Function and Parton Distribution Amplitudes
- ❑ Hall C has a unique role and very different equipment and operation requirements from the other halls, e.g., multiple subsystems (beam, spectrometer, target) whose drifts/changes must be monitored as they all directly impact performance and physics output of Hall C.

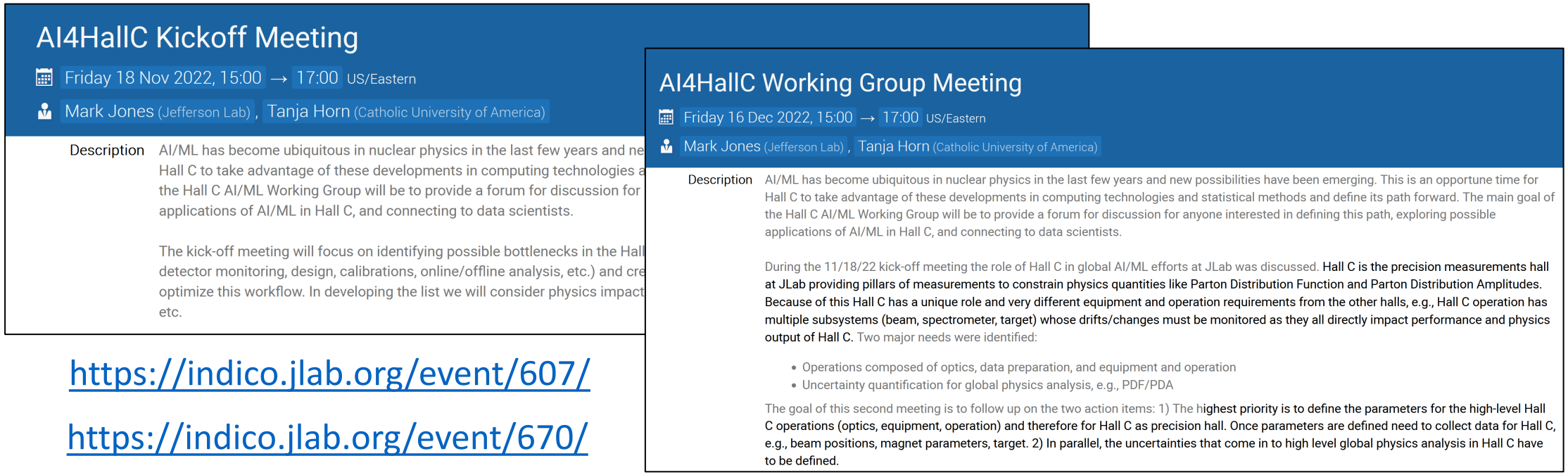
Two major areas of need :

- Higher level global physics analysis - *Uncertainty quantification*
- Higher level operation → *equipment and operation*

AI/ML in Hall C WG

Any comments/ideas/questions, let us know: hornt@cua.edu, cfanelli@wm.edu

- ❑ The AI4HallC WG had two meetings so far
- ❑ **The meetings are open to All!** No experience with AI/ML required.
- ❑ Meetings planned roughly every month. - Announcements through the Hall C mailing list



AI4HallC Kickoff Meeting

Friday 18 Nov 2022, 15:00 → 17:00 US/Eastern

Mark Jones (Jefferson Lab), Tanja Horn (Catholic University of America)

Description AI/ML has become ubiquitous in nuclear physics in the last few years and ne
Hall C to take advantage of these developments in computing technologies a
the Hall C AI/ML Working Group will be to provide a forum for discussion for
applications of AI/ML in Hall C, and connecting to data scientists.

The kick-off meeting will focus on identifying possible bottlenecks in the Hall
detector monitoring, design, calibrations, online/offline analysis, etc.) and cre
optimize this workflow. In developing the list we will consider physics impact
etc.

AI4HallC Working Group Meeting

Friday 16 Dec 2022, 15:00 → 17:00 US/Eastern

Mark Jones (Jefferson Lab), Tanja Horn (Catholic University of America)

Description AI/ML has become ubiquitous in nuclear physics in the last few years and new possibilities have been emerging. This is an opportune time for Hall C to take advantage of these developments in computing technologies and statistical methods and define its path forward. The main goal of the Hall C AI/ML Working Group will be to provide a forum for discussion for anyone interested in defining this path, exploring possible applications of AI/ML in Hall C, and connecting to data scientists.

During the 11/18/22 kick-off meeting the role of Hall C in global AI/ML efforts at JLab was discussed. Hall C is the precision measurements hall at JLab providing pillars of measurements to constrain physics quantities like Parton Distribution Function and Parton Distribution Amplitudes. Because of this Hall C has a unique role and very different equipment and operation requirements from the other halls, e.g., Hall C operation has multiple subsystems (beam, spectrometer, target) whose drifts/changes must be monitored as they all directly impact performance and physics output of Hall C. Two major needs were identified:

- Operations composed of optics, data preparation, and equipment and operation
- Uncertainty quantification for global physics analysis, e.g., PDF/PDA

The goal of this second meeting is to follow up on the two action items: 1) The highest priority is to define the parameters for the high-level Hall C operations (optics, equipment, operation) and therefore for Hall C as precision hall. Once parameters are defined need to collect data for Hall C, e.g., beam positions, magnet parameters, target. 2) In parallel, the uncertainties that come in to high level global physics analysis in Hall C have to be defined.

https://indico.jlab.org/event/607/

https://indico.jlab.org/event/670/

Hall C Futures WG

Any comments/ideas/questions, let us know:
markowit@fiu.edu, Edward.Kinney@colorado.edu

Overall Goal: To develop realistic hall configurations for additional spectrometer/detection components conceptually discussed in the Hall C Futures whitepaper

- ❑ Hall C Future whitepaper was directed towards Long Range Planning; experimental configurations were in some cases detailed, but in most conceptual.
- ❑ Useful for all to know what is possible realistically, particularly for proposing measurements
- ❑ Should help bring new scientists into the hall c collaboration
- ❑ WG will ***not*** be developing proposals, rather they will be developing facilities
- ❑ Plan the next organization meeting in Fall 2023 to develop WG goals, assess interest and commitment. All will be invited!!!

Theory-Experiment Interface

Goal: increase communication between theorists and Hall C experimentalists

Topics:
- Future measurements: observables, new reactions…
- Data interpretation: fits, propagation of uncertainties…
- Simulations: models, event generators

Physics: all current and potential future physics topics accessible in Hall C

Organization:
- quarterly meetings on Thursday afternoon, dedicated to 1-2 specific topics
- theory and experiment speakers and ample discussion time
- we can discuss recent articles, results and new ideas
- follow up on dedicated physics topics according to people's interest

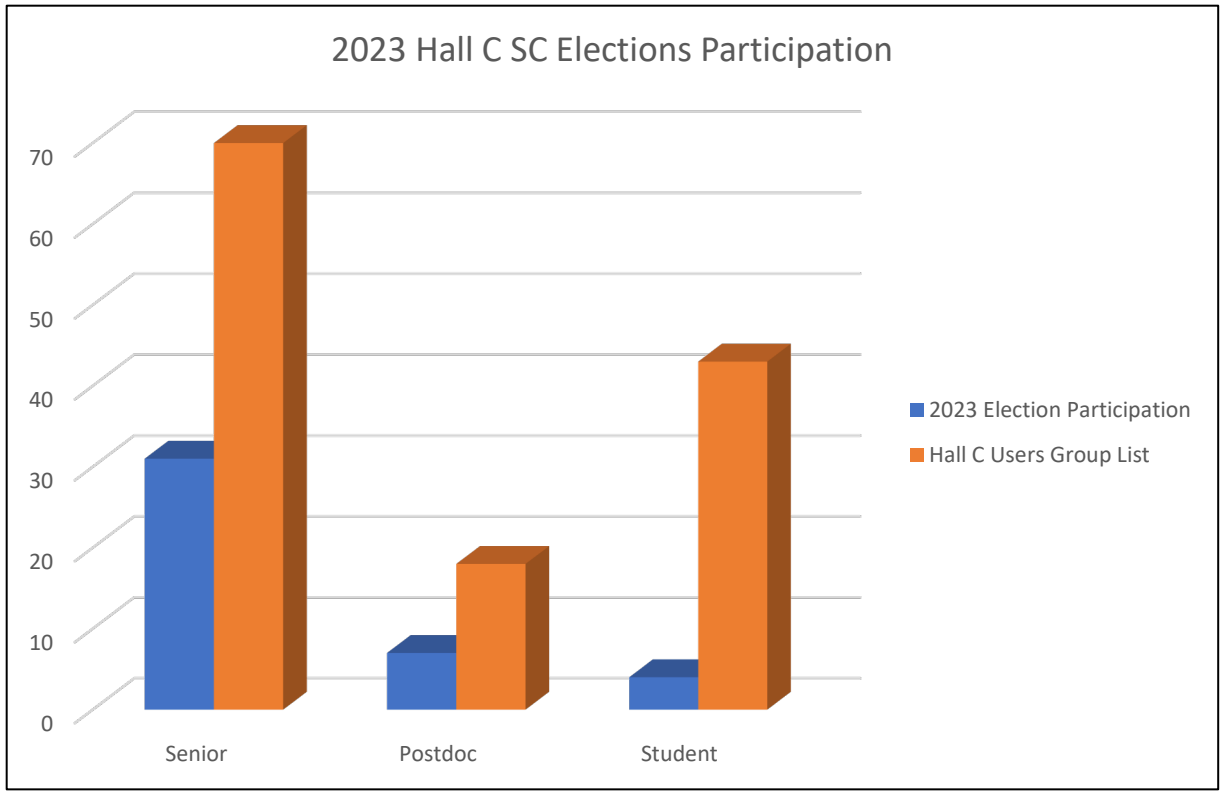
First meeting: Thursday Aug. 3d, topics TBD based on people's responses

Please contact us: weiss@jlab.org and/or mboer@jlab.org

2023 Hall C SC Election Results

- This is the annual election held by the Hall C User Group to replace two (2) board members according to the Bylaws.
- The Hall C SC plays a significant role in (re)building the Hall C community and the next few years could be crucial. For the present three (3) year term the candidates are thus experienced Hall A/C Users and are willing to dedicate a significant fraction of their time towards this goal while serving. All of the candidates have long-term experience working with collaborations, committees, and consortia.

- Voting opened on May 12 and closed on 15 June, 2023
- 32% of the Hall C User's List members participated (44% of senior, 39% of postdoc, and 9% of student members)
- The new Hall C SC starting on 9/1/2023 will be:
  - Ioana Niculescu (JMU)
  - Dipangkar Dutta (MSU)
  - Stephen Kay (U. York)
  - Marie Boer (VTech)
  - Bill Henry (JLab)
  - Pete Markowitz (FIU)



Summary and Outlook

- ❑ Hall C is the Hall for Precision Physics at the Luminosity Frontier at JLab
- ❑ An exciting 12 GeV program is ongoing in Hall C with many new opportunities
  - ➢ New equipment added to the SHMS+HMS spectrometers enhances capabilities
  - ➢ Working Groups have been established to explore and push forward topics of interest
- ❑ Great potential for Hall C physics beyond 12 GeV – Hall C White Paper D. Mack et al.

It's up to the Hall C User Community to fully realize the Hall C potential.

Let's do it!