



HPS EC Report

S. Stepanyan (JLAB)

HPS Collaboration meeting

May 13-15, 2020 (SLAC/virtual meeting)

HPS Executive Committee

- **Members:** Omar Moreno, Rafayel Paremuzyan, Raphael Dupre, Maurik Holtrop, John Jaros, Marzio de Napoli, Tim Nelson, Stepan Stepanyan (chair)
- **Website on confluence with Meeting Summaries**

<https://confluence.slac.stanford.edu/display/hpsg/HPS+Executive+Committee>



Heavy Photon Search Group / Heavy Photon Search Experiment / Collaboration

HPS Executive Committee

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Present Committee membership: Spokespeople plus Omar Moreno, Rafayel Paremuzyan, John Jaros, Marzio de Napoli, and Raphael Dupre. Stepan Stepanyan as chair.

The role of the executive committee is outlined in the bylaws(pdf). Minutes of EC Meetings are summarized in the meeting list below.

The EC formally approves thesis topic proposals in accord with [HPS Thesis Policy 2.pdf](#). Approved and suggested topics are listed in [HPS Thesis Topics.ppt](#).

The EC has established a policy for shift taking, given here: [HPS Shift Policy 3.0.pdf](#).

The EC has reviewed and collected procedures for blinding, analyzing, presenting, and publishing HPS physics results.

They include rules for presenting HPS results in theses. They are here: [Procedures for Presenting and Publishing Physics Results in HPS \(003\).DOCX](#)

The HPS Executive Committee originally consisted of F-X Girod, M. Graham, T. Maruyama, T. Nelson, and the three HPS spokespeople, M. Holtrop, S. Stepanyan, and J. Jaros (Chair). Regular members were first elected early in February 2012. Girod and Maruyama were elected to 2 year terms; Graham and Nelson to one year terms. An election for new members was conducted at the June Collaboration meeting, 2013. In this election, T. Nelson was re-elected, and R. Dupré was elected. At the June Collaboration meeting of 2014, F-X Girod and Takashi Maruyama were re-elected for another 2 year term. At the July Collaboration meeting of 2015 in Orsay, Tim Nelson and Raphael Dupre were re-elected for another 2 year term.

At the April Collaboration meeting in 2016 at SLAC, Nathan Baltzell and Matt Graham were elected, replacing F-X Girod and Takashi Maruyama.

At the May 2018 Collaboration meeting at JLAB, John Jaros stepped down as a co-spokesperson and EC chair. Tim Nelson became a co-spokesperson of HPS together with Maurik Holtrop and Stepan Stepanyan. Collaboration re-elected Raphael Dupre and elected a new member, Marzio de Napoli, to EC.

At the November 2019 collaboration meeting at JLAB collaboration elected Rafayel Paremuzyan and Omar Moreno to replace Nathan Baltzell and Matt Graham.



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HPS EC activities over past 6 months

- 10 meetings since the last collaboration meeting, with the main focus on three items:
 - completing the analysis of 2016 engineering run
 - HPS performance studies from 2019 physics run
 - preparations for PAC48 jeopardy, PAC update document and the presentationTask lists and milestones have been generated by PIs of projects and have been closely monitored by assigned EC members
- Formed and approved review committees for 2016 analysis:
 - resonance search: Keith Griffioen, Pierfrancesco Butti, Robert Johnson (chair)
 - displaced vertex search: Cameron Bravo, Tongtong Cao, Andrea Celentano (chair)
- Discussed and approved outline of the PAC update including key results to be included in the document and in the presentation
- Prepared a worklist in preparation for the 2021 run

What we need for PAC-48 jeopardy

- **2016 resonance and displaced vertex search results out, in the document and definitely in the presentation**
- **2019 detector performance and validated detector MC**
 - Calibrate and process enough data to be able to show that the vertex resolution is what was expected/promised with L0 upgrade. Need a vertex distribution of e^+e^- pairs with a fit to the core of the distribution
 - Show the invariant mass distribution of e^+e^- pairs to demonstrate mass coverage of 2019 data
 - Show E_{sum} for e^+e^- pairs with and without e^- cluster to demonstrate that the single arm trigger worked and we gain x2 more pairs
 - Validate MC setup using the E_{sum} , vertex, the invariant mass, ... distributions of e^+e^- pairs using the 2019 data
 - Run simulations for 4.55 GeV to show preliminary agreement between the data and MC
 - Simulated long leaved A 's to show increased acceptance after moving L1, L2, L3 towards the beam
 - Estimate 2019 reach using accumulated charge and 2019 detector MC
 - Estimate reach for a 4 PAC weeks of running at 3.7 GeV (2021 run)
 - Estimate reach for two more energies, ~ 2 GeV, ~ 4.4 GeV – after 2021 we will be left with 105 PAC days

List of items to be completed before the next run

- Repair or replace mini-T power supply for HPS chicane
- New tungsten collimator for HPS and fiducialization of the collimator
- Clean-up the cable trays in alcove
- Move SVT and electronics with cables to the clean room in EEL
- Repair SVT sensors and FEBs
- Repair the chiller
- Repair malfunctioning ECal modules
- Lighttightning of hodoscope
- Add nitrogen purge downstream pf the target
- DAQ/trigger improvements?

Less of a priority

- Add a turbo at the upstream end of the scattering chamber
- Design a new neutron shield upstream of the HPS magnet
- A new, light-weight (Al) vacuum chamber for the downstream frascati magnet
- Add a stripline BPM in front of the tagger magnet

EC member elections

- Our Bylaws – “3. The elected members of the Executive Committee shall be elected for terms of two years, with no limitation on succession. For the first EC, two members will be elected for one year, and two for two years, so that in subsequent years the terms are staggered. In the case that a spokesperson of the experiment is no longer a part of the experiment, their position on the EC will become an elected position.”
- The terms of two members, Marzio de Napoli and Raphael Dupre have expired and we have now 6 nominees for election to replace them.

Many thanks to Raphael and Marzio for their service!

- The nominees for EC membership:
 - Marzio de Napoli (INFN/Catania)
 - Matt Graham (SLAC)
 - Norman Graf (SLAC)
 - Cameron Bravo (SLAC)
 - Robert Johnson (UCSC)
 - Pierfrancesco Butti (SLAC)

Thanks for agreeing to run! We have 34 votes in, thanks everyone for voting.
The winners are ...



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New EC members

- Marzio de Napoli (INFN/Catania)
- Norman Graf (SLAC)

Congratulations!



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Other elections

- We should expect to run elections of new members via emails
- At the next meeting in the fall election of a new PPC will be organized. The 2 year term of the current committee will end in June.
- EC must run election of a new chair, the 2-year term of the present chair has expired (May 2020).

Next Collaboration meeting

October/November 2020

The same format, virtual meeting, organized by JLAB
(over bluejeans or zoom)

Wednesday-Friday, 8 am to noon PST

EC to decide for the exact date no later than a month
before the meeting