

Workshop Introduction



1st Workshop on New Light Physics and Photon-beam Experiments

Organizers: Lena Heijkenkjöld, Igal Jaeglé, Atsushi Tokiyasu, Yiming Zhong

Welcome to 1st Workshop on New Light Physics and Photon-beam Experiments

A few words about the organization of this virtual workshop:

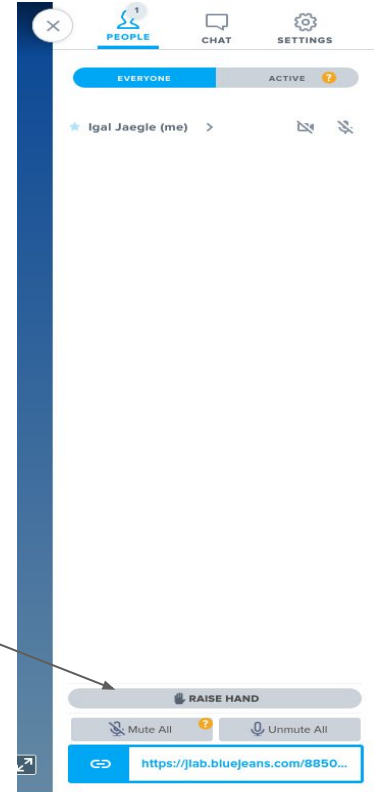
1. We are following the APS meetings Code of Conduct, <https://www.aps.org/meetings/policies/code-conduct.cfm>
2. We are using bluejeans to transmit the talks, <https://indico.jlab.org/event/413/page/234-remote-login-instructions>
3. During the talk, all microphones will/should be turned off except the ones of the speaker, session convener, and bluejeans convener. But, questions can be posted during the talk on the workshop slack channel and we will go through them at the end of the talk.
4. For the tutorials, please follow the instructions on <https://indico.jlab.org/event/413/page/236-tutorial-instructions> to set up the VM and let us know if you have any questions.

Bluejeans

If you click on top-right “PEOPLE”, this window will popup

At the end of each talk there might be time for questions:

- Questions can be asked through slack
- Or raise your hand



Workshop overview

Current and future photon-beam experiments, with their unprecedented beam intensities, provide a unique opportunity to explore MeV to GeV new light particles that couple feebly to the Standard Model. The new particles can be produced through the scatterings between the beam photons and the target nucleons or electrons, or the decays of mesons.

This workshop brings together the experimental and theoretical community within this field to discuss and strategize searches for new physics as well as share common tools through 4 dedicated sessions:

- Theoretical models and predictions
- Existing and future experimental facilities
- Research & Development
- Tutorials on tools and techniques

Wednesday open table

For our works to have some impact we need an audience and report regularly through talks & publications.

As most photon-beam experiments are family-like size, dark sector analysis are outliers.

Dark Sector Working Groups at Belle (II), BES-III, and LHC experiments have at least a half-dozen groups actively working on this.

So, we should think and discuss on Wednesday if we have an interest when possible to work together on certain topics e.g.:

- R&D
- Event generators for background & signal simulation
- Bump search & limit calculation

And possibly start a working group ...

SNOWMASS 2021

We are planning to use this workshop as a basis for our SNOWMASS 2021 contribution

https://www.snowmass21.org/docs/files/summaries/RF/SNOWMASS21-RF6_RF0-112.pdf

There are 3 others LOI with overlapping topics

- https://www.snowmass21.org/docs/files/summaries/RF/SNOWMASS21-RF6_RF2_Sean_Tulin-117.pdf
- https://www.snowmass21.org/docs/files/summaries/RF/SNOWMASS21-RF2_RF6-IF6_IF3_REDTOP_Collaboration_new-083.pdf
- https://www.snowmass21.org/docs/files/summaries/RF/SNOWMASS21-RF2_RF0_Liping_Gan-017.pdf