



**Welcome**  
to

# **Pion-Kaon Interaction Workshop**

*To exploring the physics potential and impact of  
the high statistics data on pi-K scattering, ...*

**Jianwei Qiu**  
**Theory Center**

**Thomas Jefferson National Accelerator, VA, February 14-15, 2018**



**Theory Center**



**Jefferson Lab**  
EXPLORING THE NATURE OF MATTER

**$\pi$ -K Interactions**  
*Workshop*

February 14-15, 2018

Jefferson Lab • Newport News, VA

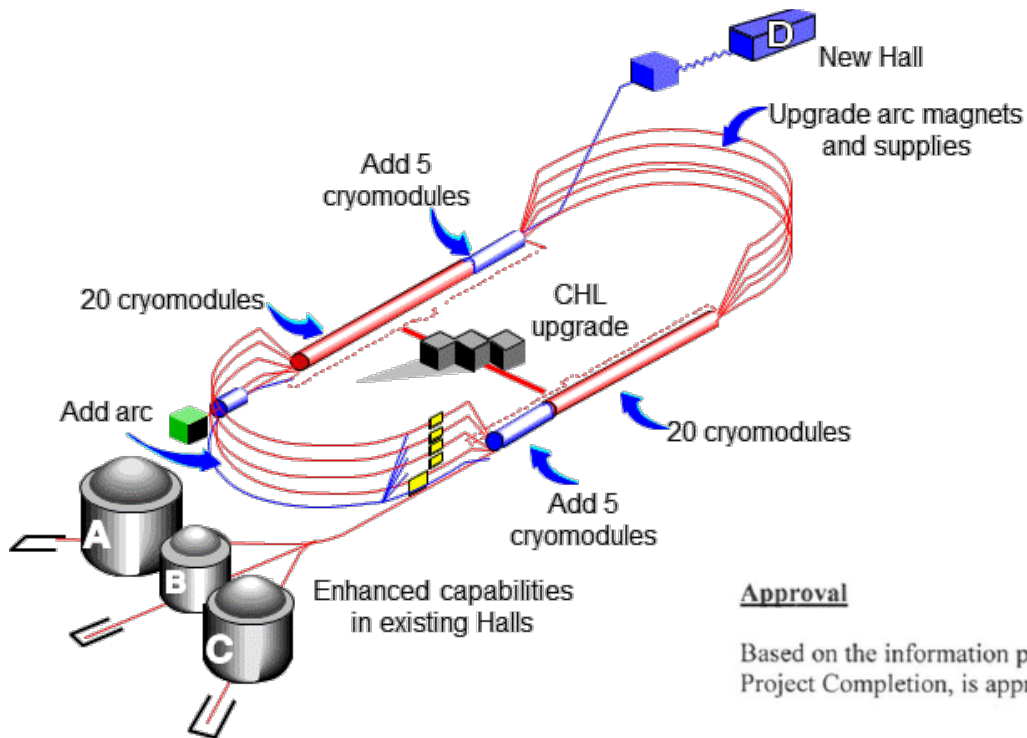
The  $\pi$ -K scattering enables direct investigations of scalar and vector  $K^*$  states, including the not yet established S-wave  $K(800)$  state. These studies are also needed to get precise values of vector and scalar form factors, to independently extract CKM matrix element  $V_{us}$  and test the Standard Model unitarity relation in the first row of CKM. The workshop will focus on the latest analysis of the data from the Jefferson Lab  $\pi$ -K scattering experiments, including the phenomenology and the lattice QCD results. The workshop will discuss the necessity of theory to describe different aspects of  $\pi$ -K scattering. The main source of experimental data is based on experiments performed in SLAC almost five decades ago at 1970s. The recently proposed KL facility incorporating the GlueX spectrometer at JLab will be able to improve the  $\pi$ -K scattering database by about three orders of magnitude in statistics. The workshop will discuss the necessity

ORGANIZING COMMITTEE:  
Maurice Anton, OJI (Chair)  
SBC, Madison, 2, BNL (Co-Chair)  
Guthrie, OJI (Co-Chair)  
David Eisen, BNL (Co-Chair)  
Lyn, OJI (Co-Chair)

Jefferson Lab  
THE SCIENCE  
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ILLUMINATE

[conferences/pki2018/](http://conferences/pki2018/)

# 12 GeV CEBAF Upgrade Project is Complete!



**On-time, On-budget, and Ready for experiments!**

## Approval

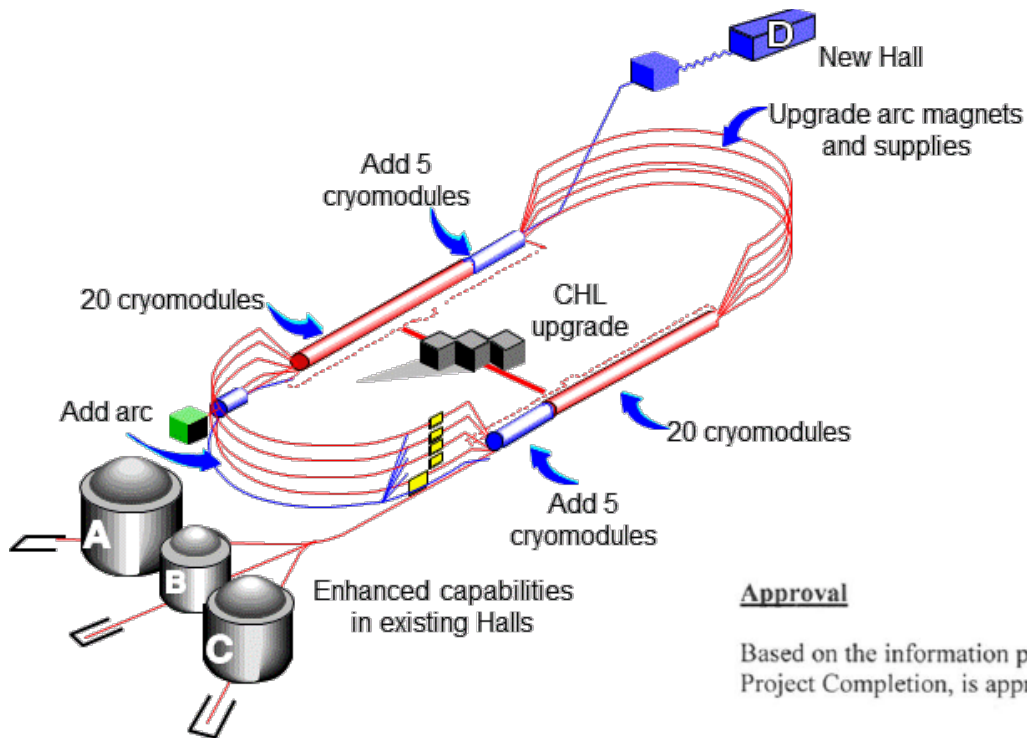
Based on the information presented above and at this review, Critical Decision 4, Approve Project Completion, is approved.

*J. Binkley*  
Dr. J. Stephen Binkley  
Deputy Director for Science Programs  
Office of Science

*9/27/17*  
Date

**Project Completion Approved September 27, 2017**

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**How to deliver physics results quickly and effectively?**

**New ideas for future experiments?**

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# This two-day workshop ...

## □ Explore the physics opportunities of pi-K scattering:

- ✦ Direct investigations of scalar and vector  $K^*$  states, ...
- ✦ Independent extraction of CKM matrix element, ...
- ✦ Test of the Unitarity Relation of CKM matrix elements in SM, ...
- ✦ Study CP violation, ...
- ✦ Better test of lattice QCD calculations, ...

KL2016

FEBRUARY 1-3, 2016  
JEFFERSON LAB  
NEWPORT NEWS, VIRGINIA

SCOPE  
The Workshop is following the 2015 "Physics Opportunities with Secondary KL beam at JLab" and will be focused on the physics of hyperons produced by the kaon beam on unpolarized and polarized targets with GlueX set up in Hall D. The emphasis will be on the hyperon spectroscopy. Such studies could contribute to the existing scientific program on hadron spectroscopy at Jefferson Lab.

The Workshop will also aim at boosting the international collaboration, in particular between the US and EU research institutions and universities.

The Workshop would help to address the comments made by the PAC43, and to prepare the full proposal for the next PAC44.

ORGANIZING COMMITTEE  
Moskov Amaryan, ODU, chair  
Eugene Chudakov, JLab  
Curtis Meyer, CMU  
Michael Pennington, JLab  
James Ritman, Ruhr-Uni-Bochum & IKP Jülich  
Igor Strakosky, GWU

[WWW.JLAB.ORG/CONFERENCES/KL2016](http://WWW.JLAB.ORG/CONFERENCES/KL2016)



Excited Hyperons in QCD  
November 16-17, 2016

Excited hyperons are an important part of the hadron spectrum. They provide indirect evidence for the existence of "missing" resonances in these contexts. The aim of the workshop is to sharpen these comparisons and advance our understanding of the production of baryons from quarks and gluons microseconds after the Big Bang and in today's experiments, and to connect these developments to experimental searches for direct, spectroscopic, evidence for these resonances. This Workshop is a successor to the recent KL2016 Workshop.



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pi-K Interactions  
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<https://www.jlab.org/conferences/piK2018/>

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- ✧ Study CP violation, ...
- ✧ Better test of lattice QCD calculations, ...

## □ Explore ideas for future experiments at JLab12:

- ✧ Opportunities and Strength of the proposed KL Facility at JLab for studying pi-K scattering, ...
- ✧ Continuous effort: KL2016, YSTAR, HIPS2017, PKI2018, ...

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## □ Look forward to the exciting discussions, ...

**Enjoy the workshop, and Welcome!**