

# **CLAS Chair Nominee Statement**

**Kyungseon JOO**

University of Connecticut

June 2019

# My background

- Associated with CLAS since 1997
  - Postdoc at the U. of Virginia and Jefferson Lab (1997 -2002)
  - Joined U. of Connecticut as Faculty (2002- Present)
- **Other positions** related Jefferson Lab
  - Program Director at NSF (2010 – 2012)
  - Program Manager at DOE (2013 – 2015)
  - Fulbright Scholar at IPN-Orsay (2015 – 2016)
  - Visiting Professor at U. of Giessen (2019)

Postdoc at  
U. of Virginia and  
Jefferson Lab

Program Director  
at NSF

Professor at U. of  
Connecticut

1997

2002

2010

2013

2015

PhD (MIT)

JLab-Bridge  
Professor at U. of  
Connecticut

Program Manager  
at DOE

# My Group

has grown very strong since 2002

## - Research Staff and Postdocs:



S. Diehl



A. Kim

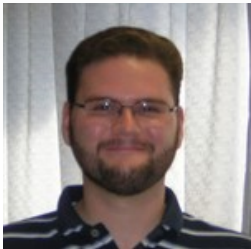


F. Cao



D. Riser

## - PhD Students:



T. O'Connell



B. Clary



K. Wei



K. Tezgin



V. Klimenko



R. Capobianco

## - Undergraduates:



S. Makelon



Paul Simmerling

# My Group has grown very strong since 2002

- Has produced former postdocs: Maurizio Ungaro (JLab), Nick Markov (JLab)
- Has produced 9 PhDs:
  1. [David Riser \(2019\)](#): “Studies of Quark Momentum in the Proton by use of the SIDIS Process”
  2. [Frank Cao \(2019\)](#): “Deeply Virtual  $\pi^0$  Meson Production off  $^4\text{He}$ ”
  3. [Nathan Harrison \(2015\)](#): “Exploring the Structure of the Proton via Semi-Inclusive Pion Electroproduction”
  4. Erin Seder (2013): “Target-Spin Asymmetry Measurements for Deeply Virtual Compton Scattering on Longitudinally Polarized Protons”
  5. [Taisiya Mineeva \(2013\)](#): “Hadronization Studies via  $\pi^0$  Electroproduction off D, C, Fe, and Pb”
  6. [Ilkyoung Shin \(2013\)](#): “Multipass Beam Breakup Study at Jefferson Lab for the 12 GeV CEBAF Upgrade”
  7. [Wes Gohn \(2012\)](#): “ Probing the Proton's Quark Dynamics in the Semi-inclusive Pion Electroproduction”
  8. [Nikolay Markov \(2012\)](#): “A Search for Exotic Mesons in  $\gamma^* p$  to  $\pi^+ n$  with CLAS at Jefferson Lab”
  9. Bo Zhao (2008): “Beam Spin Asymmetry Measurements from Deeply Virtual Meson Production”

# My Group with CLAS12

- **CLAS12 detector development**

- GEMC initiated/developed by Maurizio Ungaro
- High Threshold Cherenkov Counter (HTCC) led by Nikolay Markov
- Trigger Studies led by Nikolay Markov
- Ring Imaging Cherenkov detector (RICH) led by Andrey Kim
- e-HD transversely polarized target led by Kevin Wei (graduate student), Thomas O'Connell (graduate student)

- **CLAS12 approved experiments**

Co-spokespersonship of 6 approved CLAS12 experiments on Generalized Parton Distributions (GPDs), Transverse Momentum Distributions (TMDs),  $N^*$  physics, and hadronization.

# PAC Approved Experiments with CLAS12

JLAB-E12-06-108: “Hard Exclusive Electroproduction of  $p_0$  and  $h$  with CLAS12.” (GPDs)

JLab-C12-11-111, “Transverse spin effects in SIDIS at 11 GeV with a transversely polarized target using the CLAS12 Detector.” (TMDs)

JLAB-E12-06-112: “Probing the Proton’s Quark Dynamics in Semi-Inclusive Pion Production at 12 GeV.” (TMDs)

JLab-E12-09-009, “Studies of the Boer-Mulders Asymmetry in Kaon Electroproduction with Hydrogen and Deuterium Targets.” (TMDs)

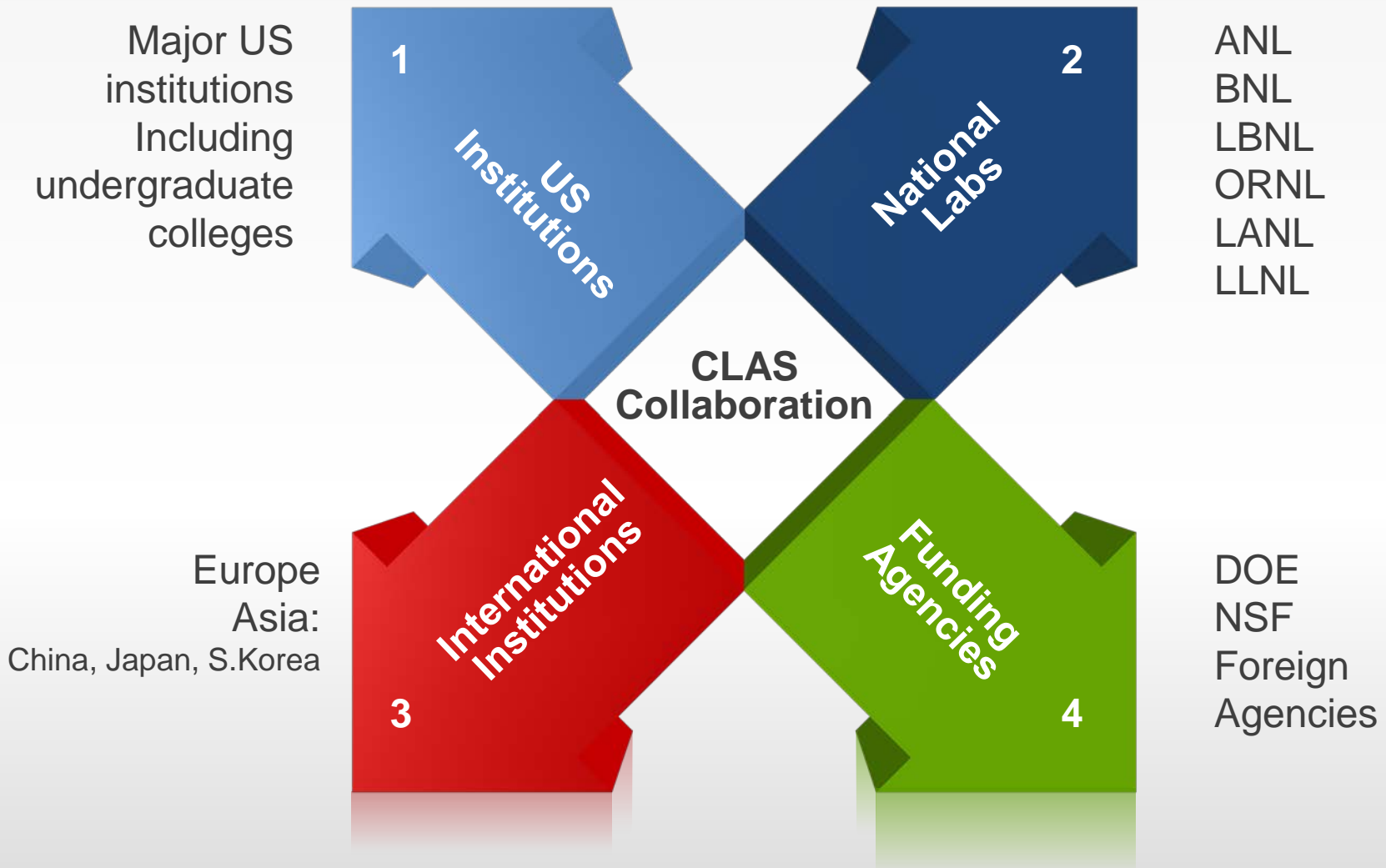
JLAB-E12-09-003: “Nucleon Resonance Studies with CLAS12.” (N\*)

JLAB-E12-06-117: “Quark Propagation and Hadron Formation in  $\pi^0$  and  $\eta$  channels.” (Hadronization)

# Should I be elected as chair, my focus will be on

- Preparing and performing scheduled experiments with CLAS12 and disseminating first and subsequent physics results for prompt publication.
  - streamlined data analysis, and review process for expedited publications by coordinating efforts of CLAS12 run groups and physics working groups,
- Scientific priorities and scheduling
- Producing continued output of excellent science from 6 GeV era data
- Improving the visibility of the CLAS collaboration to the next level
- Expanding the reach of the collaboration
- Improved communications with funding agencies (DOE and NSF)
- Extending the CLAS12 scientific reach

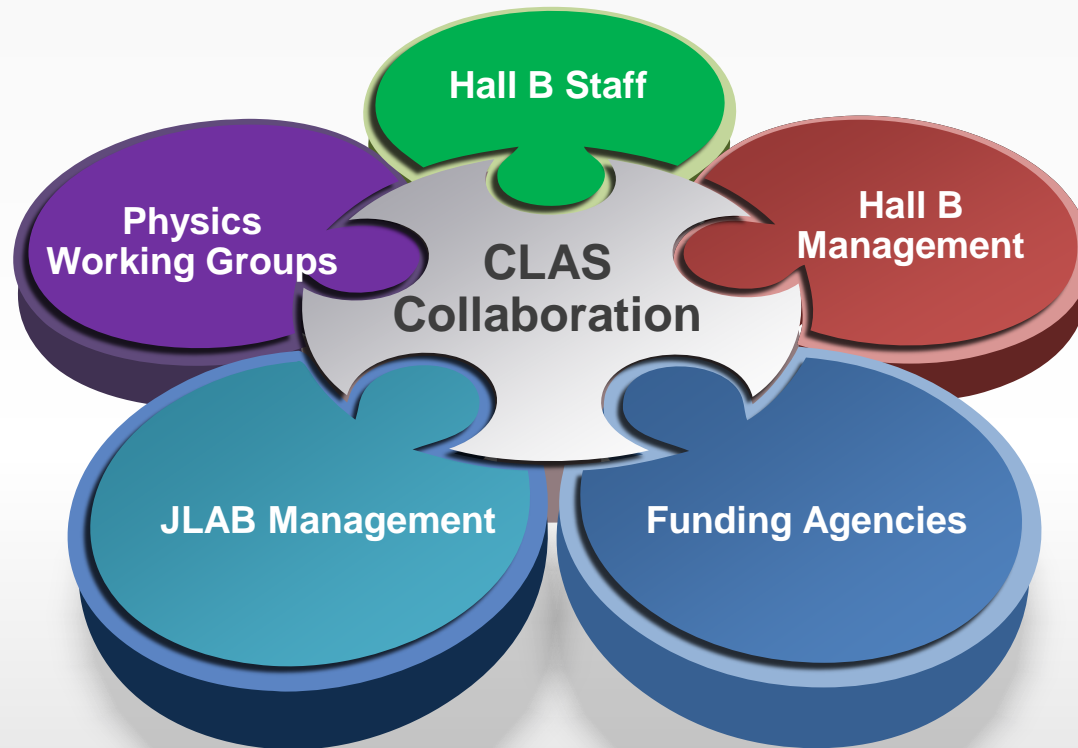
# - Enhancing the visibility of the CLAS Collaboration, and expanding the reach of the collaboration





Should I be elected as chair,

I will be 100% dedicated to this job for next two years to maximize a full potential of our CLAS12.



**UConn physics department** is committed to provide me **50% teaching release** for next three years.

**Thank you!**

# Key Selected Publications (1)

1. B. Zhao, A. Kim and **K. Joo** et al. (CLAS Collaboration), "Measurement of the Beam Spin Asymmetry of  $ep \rightarrow e'p'\eta$  in the Deep-Inelastic Regime with CLAS," Phys. Lett. B 789 426-431 (2019).
2. A. Kim and **K. Joo** et al. (CLAS Collaboration), "Target and Double Spin Asymmetries of Deeply Virtual  $\pi^0$  Production with a Longitudinally Polarized Proton Target and CLAS," Phys. Lett. B 768, 168 (2017).
3. E. Seder and **K. Joo** et al. (CLAS Collaboration), "Longitudinal Target-Spin Asymmetries for Deeply Virtual Compton Scattering," Phys. Rev. Lett. 114, 032001 (2015).
4. W. Gohn and **K. Joo** et al. (CLAS Collaboration), "Beam-spin Asymmetries from Semi-inclusive Pion Electroproduction," Phys. Rev. D 89, 072011 (2014).
5. K. Park and **K. Joo**, et. al., "Cross sections and beam asymmetries for  $ep \rightarrow en\pi^+$  in the nucleon resonance region for  $1.7 < Q^2 < 4.5 \text{ GeV}^2$ ," Phys. Rev. C 77, 015208, 23pp (2008).
6. F.X. Girod and **K. Joo** et. al., "Deeply virtual Compton scattering beam-spin asymmetries," Phys. Rev. Lett. 100, 162002, 6pp (2008).
7. M. Ungaro and **K. Joo** et al. (CLAS Collaboration), "Measurement of  $N \rightarrow \Delta(1232)$  Transition at High Momentum Transfer by  $\pi^0$  Electroproduction," Phys. Rev. Letters 97, 112003 6pp (2006).

## Key Selected Publications (2)

8. I.G. Aznauryan, V.D. Burkert, H. Egiyan, **K. Joo**, R. Minehart and L.C. Smith, “Electroexcitation of the P33(1232), P11(1440), D13(1520), and S11(1535) at  $Q^2 = 0.40$  and  $Q^2 = 0.65$  (GeV/c)<sup>2</sup>,” Phys. Rev. C 71, 015201 9pp (2005)
9. **K. Joo** et al. (CLAS Collaboration), “Measurement of the Polarized Structure Function  $\sigma_{LT}$  for Pion Electroproduction in the Roper Resonance Region,” Phys. Rev. C 72, 058202 5pp (2005).
10. **K. Joo** et al. (CLAS Collaboration), “Measurement of the polarized structure function  $\sigma_{LT}$  for  $p(e, e' \pi^+)n$  in the  $\Delta(1232)$  resonance region,” Phys. Rev. C 70, 042201 6pp (2004).
11. D.S. Carman and **K. Joo** et al. (CLAS Collaboration), “First measurement of transferred polarization in the exclusive  $ep \rightarrow e'K^+\Lambda$  reaction,” Phys. Rev. Letters 90, 131804 6pp (2003).
12. **K. Joo** et al. (CLAS Collaboration), “Measurement of the polarized structure function  $\sigma_{LT}$  for  $p(e, e' \pi^0)n$  in the  $\Delta(1232)$  resonance region,” Phys. Rev. C 68, 032201 5pp (2003).
13. I. Akushevich, A. Afanasev, V.D. Burkert and **K. Joo**, “QED radiative corrections in processes of exclusive pion electroproduction,” Phys. Rev. D 66, 074004 13pp (2002).
14. **K. Joo** et al. (CLAS Collaboration), “ $Q^2$  dependence of quadrupole strength in the  $\gamma^* p \rightarrow \Delta(1232) \rightarrow p \pi^0$  transition,” Phys. Rev. Letters 88, 122001 5pp (2002).