

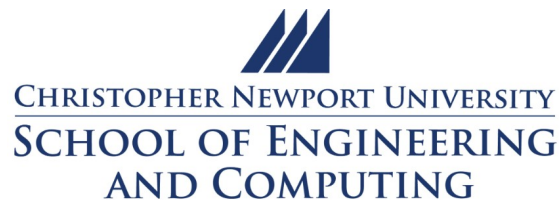
# Welcome to CNUGS 2026

Alberto Accardi, William Phelps  
(Christopher Newport U. and Jefferson Lab)

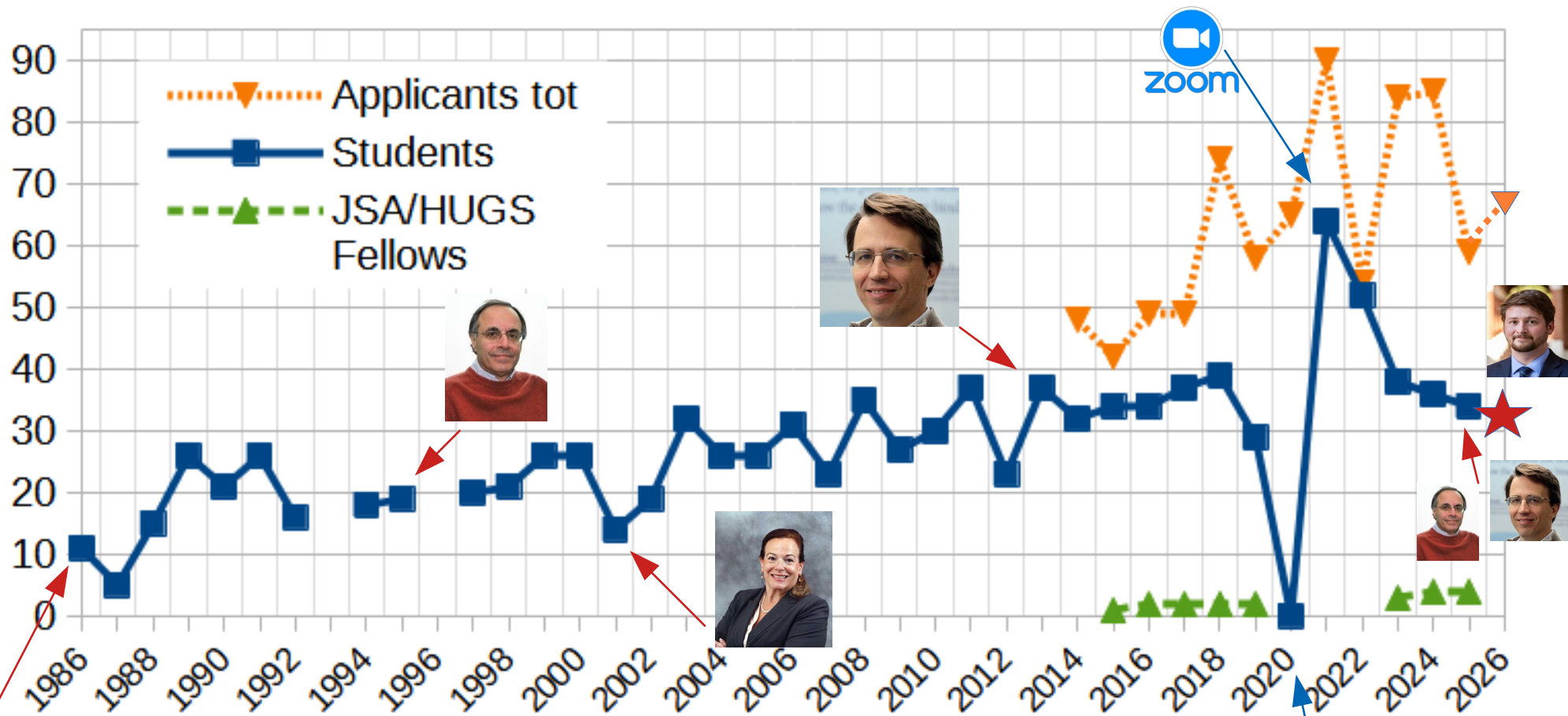
Ming Li (Hampton U.)

Pia Jones Petrak, Bhawani Singh, Frank Vera (Jefferson Lab)

Proudly sponsored by:



# In the footsteps of HUGS



Total # students: 1000+  
13-years average: 36 students/year



# The team



**We are here for you!**

# At a glance

	1st week May 25 - 29	2nd week June 1-5	3rd week June 8-12	
Mon		Lattice QCD K. Orginos - William & Mary	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	AM
				lunch
		Mechanical Properties of Hadrons A. Freese (CNF)	AI/ML Bootcamp 4	PM
		Topical -- The Prad Experiment - T Hague (JLab)		
Tue	8:00 Breakfast -- 9:00 HUGS Welcome -- 10:00 Fostering a Safe Workplace -- 10:30 Group photo -- 10:45 check-in and badging	Lattice QCD K. Orginos - William & Mary	Topical -- Light Dark Matter Searches M. Battaglieri (INFN Genova, Italy)	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 2	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	PM
			Recap with speakers	
Wed	Hadron Spectroscopy J. Stevens (William & Mary)	Global QCD Analysis Zhite Yu (BNL)	Student Seminars	AM
				lunch
	Topical -- Jefferson Lab Science: Accelerator, R. Bodenstein & Physics, D. Higinbotham (JLab)	Mechanical Properties of Hadrons A. Freese (CNF)	Topical - AI/ML related - TBA	PM
	CNUGS debrief	CNUGS debrief	Ice cream social	
Thu	Hadron Spectroscopy J. Stevens (William & Mary)	Parity Violation at JLab and Beyond K. Kumar (UMass)	Student Seminars	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 3	Poster Session	PM
	Recap with speakers	Recap with speakers	Reception w/ DOE undersecretary Gil	
Fri	AI/ML Bootcamp 1	Parity Violation at JLab and Beyond K. Kumar (UMass)	AI/ML Hackathon	AM
				lunch
	JLab Tour 1-4 PM	Global QCD Analysis Zhite Yu (BNL)	Prizes and Farewell	PM
			FAREWELL "PICNIC"	

# Speakers and topics

## Topical Seminars:

- Jefferson Lab Science: present and future  
*D. Higinbotham* - JLab
- Light Dark Matter searches at Jefferson Lab  
*M. Battaglieri* - INFN Genova, Italy
- The Prad Experiment  
*Tyler Hague* - JLab

## Main Lectures:

- Introduction to QCD and Small-x Physics  
*Ming Li* - Hampton U.
- Mechanical Properties of Hadrons  
*Adam Freese* - Center for Nuclear Femtography (CNF)
- Hadron Spectroscopy  
*Justin Stephens* - William & Mary
- Lattice QCD  
*Kostas Orginos* - William & Mary
- Spin structure of the proton from JLab to the LHC  
*Charlotte van Hulse* - Free University of Brussels, Belgium
- Global QCD analysis  
*Zhite Yu* - Brookhaven National Lab
- Experimental Symmetry Tests: Parity Violation at JLab and Beyond  
*Krishna Kumar* - U. of Massachusetts, Amherst

# AI Bootcamp and Hackathon

	1st week May 25 - 29	2nd week June 1-5	3rd week June 8-12	
Mon		Lattice QCD K. Orginos - William & Mary	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	AM
				lunch
		Mechanical Properties of Hadrons A. Freese (CNF) Topical -- The Prad Experiment - T Hague (JLab)	AI/ML Bootcamp 4	PM
Tue	8:00 Breakfast -- 9:00 HUGS Welcome -- 10:00 Fostering a Safe Workplace -- 10:30 Group photo -- 10:45 check-in and badging	Lattice QCD K. Orginos - William & Mary	Topical -- Light Dark Matter Searches M. Battaglieri (INFN Genova, Italy)	AM
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 2	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	lunch
			Recap with speakers	PM
Wed	Hadron Spectroscopy J. Stevens (William & Mary)	Global QCD Analysis Zhite Yu (BNL)	Student Seminars	AM
	Topical -- Jefferson Lab Science: Accelerator, R. Bodenstein & Physics, D. Higinbotham (JLab)	Mechanical Properties of Hadrons A. Freese (CNF)	Topical - AI/ML related - TBA	lunch
	CNUGS debrief	CNUGS debrief	Ice cream social	PM
Thu	Hadron Spectroscopy J. Stevens (William & Mary)	Parity Violation at JLab and Beyond K. Kumar (UMass)	Student Seminars	AM
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 3	Poster Session	lunch
	Recap with speakers	Recap with speakers	Reception w/ DOE undersecretary Gil	PM
Fri	AI/ML Bootcamp 1	Parity Violation at JLab and Beyond K. Kumar (UMass)	AI/ML Hackathon	AM
	JLab Tour 1-4 PM	Global QCD Analysis Zhite Yu (BNL)	Prizes and Farewell	lunch
			FAREWELL "PICNIC"	PM

	1st May
Mon	
Tue	8:00 Breakfast -- 9:00 HUGS Workplace -- 10:30 Group photo  Intro to QCD at Mingos
Wed	Hadron School J. Stevens (JLab)  Topical -- Jeffery Accelrator, R. Bodenstein & JLab CNUGS
Thu	Hadron School J. Stevens (JLab)  Intro to QCD at Mingos  Recap with JLab
Fri	AI/ML Bootcamp  JLab Town Hall

Week 12	
Lab to the LHC (U. Brussels)	AM
	lunch
Workshop 4	PM
Particle Searches (Genova, Italy)	AM
	lunch
Lab to the LHC (U. Brussels)	PM
Workshops	
Seminars	AM
	lunch
Workshop - TBA	PM
Social	
Seminars	AM
	lunch
Workshop	PM
Workshop - Secretary Gil	
Workshop	AM
	lunch
Workshop - Sewell	PM
Workshop - "ICNIC"	

- **Session 1: Foundations** – An introduction to the essential tools of modern computational science, including git and version control, Python fundamentals and Jupyter Notebooks for interactive development.
- **Session 2: Data Handling and Analysis** – Applied training in core Python scientific libraries, including NumPy, Pandas and Matplotlib for data wrangling, exploration and visualization.
- **Session 3: Core Machine Learning Methods** – Introduction to regression and classification methods, including supervised/unsupervised learning paradigms, evaluation metrics and workflow best practices.
- **Session 4: Neural Networks & Advanced Topics** – Basics of deep learning, training neural networks and exposure to additional AI/ML techniques relevant to nuclear physics (NP).

One or two topical seminars on cutting-edge applications of AI and ML to nuclear physics research will round out the four planned hands-on sessions.

- **Hackathon:** The bootcamp culminates in a day-long hackathon, where participants apply what they've learned to real-world challenges in a fast-paced, collaborative environment. Students will work in teams to build solutions, test ideas and engage in friendly competition that strengthens both their technical skills and their ability to work across disciplines.

# Debriefs, socials, and all that

	1st week May 25 - 29	2nd week June 1-5	3rd week June 8-12	
Mon		Lattice QCD K. Orginos - William & Mary	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	AM
				lunch
		Mechanical Properties of Hadrons A. Freese (CNF)	AI/ML Bootcamp 4	PM
		Topical -- The Prad Experiment - T Hague (JLab)		
Tue	8:00 Breakfast -- 9:00 HUGS Welcome -- 10:00 Fostering a Safe Workplace -- 10:30 Group photo -- 10:45 check-in and badging	Lattice QCD K. Orginos - William & Mary	Topical -- Light Dark Matter Searches M. Battaglieri (INFN Genova, Italy)	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 2	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	PM
			Recap with speakers	
Wed	Hadron Spectroscopy J. Stevens (William & Mary)	Global QCD Analysis Zhite Yu (BNL)	Student Seminars	AM
				lunch
	Topical -- Jefferson Lab Science: Accelerator, R. Bodenstein & Physics, D. Higinbotham (JLab)	Mechanical Properties of Hadrons A. Freese (CNF)	Topical - AI/ML related - TBA	PM
	CNUGS debrief	CNUGS debrief	Ice cream social	
Thu	Hadron Spectroscopy J. Stevens (William & Mary)	Parity Violation at JLab and Beyond K. Kumar (UMass)	Student Seminars	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 3	Poster Session	PM
	Recap with speakers	Recap with speakers	Reception w/ DOE undersecretary Gil	
Fri	AI/ML Bootcamp 1	Parity Violation at JLab and Beyond K. Kumar (UMass)	AI/ML Hackathon	AM
				lunch
	JLab Tour 1-4 PM	Global QCD Analysis Zhite Yu (BNL)	Prizes and Farewell	PM
			FAREWELL "PICNIC"	

At the Resfac

# Debriefs, socials, and all that

	1st week May 25 - 29	2nd week June 1-5	3rd week June 8-12	
Mon		Lattice QCD K. Orginos - William & Mary	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	AM
				lunch
		Mechanical Properties of Hadrons A. Freese (CNF)	AI/ML Bootcamp 4	PM
		Topical -- The Prad Experiment - T Hague (JLab)		
Tue	8:00 Breakfast -- 9:00 HUGS Welcome -- 10:00 Fostering a Safe Workplace -- 10:30 Group photo -- 10:45 check-in and badging	Lattice QCD K. Orginos - William & Mary	Topical -- Light Dark Matter Searches M. Battaglieri (INFN Genova, Italy)	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 2	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	PM
			Recap with speakers	
Wed	Hadron Spectroscopy J. Stevens (William & Mary)	Global QCD Analysis Zhite Yu (BNL)	Student Seminars	AM
				lunch
	Topical -- Jefferson Lab Science: Accelerator, R. Bodenstein & Physics, D. Higinbotham (JLab)	Mechanical Properties of Hadrons A. Freese (CNF)	Topical - AI/ML related - TBA <b>at CNU</b>	PM
	CNUGS debrief	CNUGS debrief	Ice cream social	
Thu	Hadron Spectroscopy J. Stevens (William & Mary)	Parity Violation at JLab and Beyond K. Kumar (UMass)	Student Seminars	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 3	Poster Session	PM
	Recap with speakers	Recap with speakers	Reception w/ DOE undersecretary Gil	
Fri	AI/ML Bootcamp 1	Parity Violation at JLab and Beyond K. Kumar (UMass)	AI/ML Hackathon	AM
				lunch
	JLab Tour 1-4 PM	Global QCD Analysis Zhite Yu (BNL)	Prizes and Farewell	PM
			FAREWELL "PICNIC"	

# Let's chat with the speakers

	1st week May 25 - 29	2nd week June 1-5	3rd week June 8-12	
Mon		Lattice QCD K. Orginos - William & Mary	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	AM
				lunch
		Mechanical Properties of Hadrons A. Freese (CNF)	AI/ML Bootcamp 4	PM
		Topical -- The Prad Experiment - T Hague (JLab)		
Tue	8:00 Breakfast -- 9:00 HUGS Welcome -- 10:00 Fostering a Safe Workplace -- 10:30 Group photo -- 10:45 check-in and badging	Lattice QCD K. Orginos - William & Mary	Topical -- Light Dark Matter Searches M. Battaglieri (INFN Genova, Italy)	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 2	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	PM
			Recap with speakers	
Wed	Hadron Spectroscopy J. Stevens (William & Mary)	Global QCD Analysis Zhite Yu (BNL)	Student Seminars	AM
				lunch
	Topical -- Jefferson Lab Science: Accelerator, R. Bodenstein & Physics, D. Higinbotham (JLab)	Mechanical Properties of Hadrons A. Freese (CNF)	Topical - AI/ML related - TBA	PM
	CNUGS debrief	CNUGS debrief	Ice cream social	
Thu	Hadron Spectroscopy J. Stevens (William & Mary)	Parity Violation at JLab and Beyond K. Kumar (UMass)	Student Seminars	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 3	Poster Session	PM
	Recap with speakers	Recap with speakers	Reception w/ DOE undersecretary Gil	
Fri	AI/ML Bootcamp 1	Parity Violation at JLab and Beyond K. Kumar (UMass)	AI/ML Hackathon	AM
				lunch
	JLab Tour 1-4 PM	Global QCD Analysis Zhite Yu (BNL)	Prizes and Farewell	PM
			FAREWELL "PICNIC"	

# Seminars

	1st week May 25 - 29	2nd week June 1-5	3rd week June 8-12	
Mon		<b>Lattice QCD</b> K. Orginos - William & Mary	<b>Spin structure form JLab to the LHC</b> C. Van Hulse (Free U. Brussels)	AM
				lunch
		<b>Mechanical Properties of Hadrons</b> A. Freese (CNF)	<b>AI/ML Bootcamp 4</b>	PM
		<b>Topical -- The Prad Experiment - T Hague (JLab)</b>		
Tue	8:00 Breakfast -- 9:00 HUGS Welcome -- 10:00 Fostering a Safe Workplace -- 10:30 Group photo -- 10:45 check-in and badging	<b>Lattice QCD</b> K. Orginos - William & Mary	<b>Topical -- Light Dark Matter Searches</b> M. Battaglieri (INFN Genova, Italy)	AM
				lunch
	<b>Intro to QCD and small-x physics</b> Ming Li (HU)	<b>AI/ML Bootcamp 2</b>	<b>Spin structure form JLab to the LHC</b> C. Van Hulse (Free U. Brussels)	PM
			<i>Recap with speakers</i>	
Wed	<b>Hadron Spectroscopy</b> J. Stevens (William & Mary)	<b>Global QCD Analysis</b> Zhite Yu (BNL)	<b>Student Seminars</b>	AM
				lunch
	<b>Topical -- Jefferson Lab Science: Accelerator, R. Bodenstein &amp; Physics, D. Higinbotham (JLab)</b>	<b>Mechanical Properties of Hadrons</b> A. Freese (CNF)	<b>Topical - AI/ML related - TBA</b>	PM
	CNUGS debrief	CNUGS debrief	Ice cream social	
Thu	<b>Hadron Spectroscopy</b> J. Stevens (William & Mary)	<b>Parity Violation at JLab and Beyond</b> K. Kumar (UMass)	<b>Student Seminars</b>	AM
				lunch
	<b>Intro to QCD and small-x physics</b> Ming Li (HU)	<b>AI/ML Bootcamp 3</b>	<b>Poster Session</b>	PM
	<i>Recap with speakers</i>	<i>Recap with speakers</i>	<b>Reception w/ DOE undersecretary Gil</b>	
Fri	<b>AI/ML Bootcamp 1</b>	<b>Parity Violation at JLab and Beyond</b> K. Kumar (UMass)	<b>AI/ML Hackathon</b>	AM
				lunch
	<b>JLab Tour 1-4 PM</b>	<b>Global QCD Analysis</b> Zhite Yu (BNL)	<b>Prizes and Farewell</b>	PM
			<b>FAREWELL "PICNIC"</b>	

# Poster + meet Dario Gil

	1st week May 25 - 29	2nd week June 1-5	3rd week June 8-12	
Mon		Lattice QCD K. Orginos - William & Mary	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	AM
				lunch
		Mechanical Properties of Hadrons A. Freese (CNF)	AI/ML Bootcamp 4	PM
		Topical -- The Prad Experiment - T Hague (JLab)		
Tue	8:00 Breakfast -- 9:00 HUGS Welcome -- 10:00 Fostering a Safe Workplace -- 10:30 Group photo -- 10:45 check-in and badging	Lattice QCD K. Orginos - William & Mary	Topical -- Light Dark Matter Searches M. Battaglieri (INFN Genova, Italy)	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 2	Spin structure form JLab to the LHC C. Van Hulse (Free U. Brussels)	PM
			Recap with speakers	
Wed	Hadron Spectroscopy J. Stevens (William & Mary)	Global QCD Analysis Zhite Yu (BNL)	Student Seminars	AM
				lunch
	Topical -- Jefferson Lab Science: Accelerator, R. Bodenstein & Physics, D. Higinbotham (JLab)	Mechanical Properties of Hadrons A. Freese (CNF)	Topical - AI/ML related - TBA	PM
	CNUGS debrief	CNUGS debrief	Ice cream social	
Thu	Hadron Spectroscopy J. Stevens (William & Mary)	Parity Violation at JLab and Beyond K. Kumar (UMass)	Student Seminars	AM
				lunch
	Intro to QCD and small-x physics Ming Li (HU)	AI/ML Bootcamp 3	Poster Session	PM
	Recap with speakers	Recap with speakers	Reception w/ DOE undersecretary Gil	
Fri	AI/ML Bootcamp 1	Parity Violation at JLab and Beyond K. Kumar (UMass)	AI/ML Hackathon	AM
				lunch
	JLab Tour 1-4 PM	Global QCD Analysis Zhite Yu (BNL)	Prizes and Farewell	PM
			FAREWELL "PICNIC"	

# Announcements, communications

## □ Slack:

- **Most school announcements**
- Discussions, chats
  - Students, lecturers, organizers

Participate, engage

→ **Make it even better!**

#general, #social, #photos, #{...topic...}

## □ Indico:

- This is the **official school timetable**
- Local info
- Seminars and Posters info coming soon

## □ **Live announcements** in the classroom

Students



Organizers  
and lecturers

# Seminars & Posters

- ❑ Student presentations (the best part of the school)
  - **Seminars:** 12 + 3 minutes
  - **Posters** (+ refreshments!)
    - Plus meet DOE undersecretary Dario Gil @ **special reception**
  
- ❑ Your choice which one
  - But all should: present + participate, ask questions, discuss
  
- ❑ **Deadlines:**
  - Title & Abstract: **This coming Friday!!** (Link out soon)
  - Poster printing at JLab: **Thursday, June 4<sup>th</sup>** (PDF, instructions soon)
  
- ❑ Peer refereed (+ poster judges)
  - Can win the coveted **CNUGS presentation prize(s) !!**

# A partnership

**Students**



**Organizers  
and lecturers**

# Enjoy your 3 weeks!

(Next... safety & workplace,  
group pictures, then badging)

→ **Questions ?** ←