

# CTEQ School Report

Fred Olness

&

Zack Sullivan

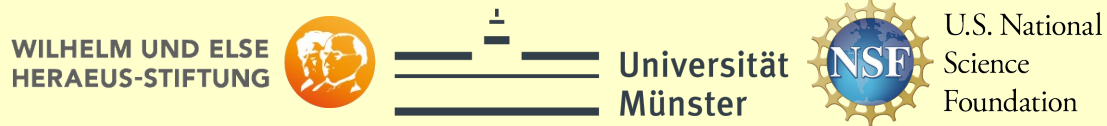
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For the CTEQ School Committee

CTEQ

CTEQ Fall Meeting

Christopher Newport University  
21-22 November 2024



Thanks to

- Michael Klasen
- Karol Kovarik
- Tomas Jezo

Thanks to

- Dave Soper
- Laura Reina
- Dieter Zeppenfeld



- Overall impression was very good, I think enough of the talks were relevant and helpful for my research.
- I was impressed by the QCD, DIS talks as well as the monte-carlo tutorials, POWHEG and machine learning, which would be quite useful for my research.
- Of course not all topics are equally connected to my research, however, they were mostly interesting and helpful for the overall understanding of QCD. Just repeating and thus refreshing things from QCD lectures probably everybody had in the past was already helpful.
- The school was very well organized and the hotel was very nice. The PDF lectures were directly relevant to my research, and I learnt a lot in the other lectures also.
- I enjoyed the school very much. In particular, the theory lectures on Jets, PDFs and top physics where great and also directly related to my research interests.
- Outstanding
- Very nice summer school and overall talks were very useful as a groundwork for newly entering graduate school. I wish I could have attended this at my early career path.
- Awesome
- Very good quality of the speakers overall. Some talks where very relevant for my research
- The school was very good and instructive
- Very nice! I think the talks about MC are useful for my research.
- I enjoyed the school a lot and I appreciated having both theorists and experimentalists presenting their topics.
- I really enjoyed the school, but I would have liked more of the lectures to go into more technical detail.
- I was really impressed with the school. The professors are very knowledgeable. The course on QCD, DIS and PDFs has been really useful for me.
- Although most of the talks are not directly related, they are very relevant.





Thanks to

- Reinhard Schwienhorst
- Huey-Wen Lin
- Joey Huston
- Pavel Nadolsky



Tuesday @ 7pm

24 June 2025

Lansing Lugnuts

vs

Dayton Dragons ???

# CyberTraining: Pilot: Monte Carlo general education network (MCgen)

Thanks to

- Phil Ilten
- Ben Nachman

## 1 Project Summary

### 1.1 Overview

**Particle and nuclear physics** (PNP), the study of Nature at the shortest distances, are fundamentally probabilistic, and rely on complex **Monte-Carlo** (MC)-based simulators to make stochastic predictions for nearly all aspects of experimental design and data interpretation. This requires developing, validating, and deploying novel and efficient MC algorithms. Many algorithm curricula focus on deterministic methods, with MC techniques covered only in passing. However, most branches of science and engineering rely heavily on MC simulations, from modelling traffic flow to predicting weather patterns; in the rapidly emerging fields of machine learning and quantum computing, MC methods are essential. We propose to begin filling this **knowledge gap** by training **graduate students** and **junior postdoctoral researchers** in the development of MC models with apprenticeships and practical tutorials focused on real-world PNP problems.

## 2022 Numbers ... in progress

Student Reg Fee				\$800		
Student Costs					\$703	Cost per student
	per day	days	Total			
Rooms		36	10	\$360		
Board		38	9	\$343		
Lecturer Costs (in Hotel)					\$198	Daily Cost per Lecturer
	per day	days	Total			
Rooms		\$160	10	\$1,600		
Board		\$38	9	\$343		
Lecturer Costs (in Dorm)					\$110	Daily Cost per Lecturer
	per day	days	Total			
Rooms		\$72	10	\$720		
Board		\$38	9	\$343		
Expenses	Days	Per day	Estimate			
Lecturers (in hotel)	44	\$198	\$8,719			
Lecturers (in dorm)	30	\$110	\$3,305			
	Number/per	Cost				
Coffee Breaks	8	\$493	\$3,944			(\$1,600 in 2013)
night cap	8	2000	\$16,000			(\$8,743 in 2015)
Free Day bus & Activity			\$2,000			Free day activity
Lecturer Airfare	8	700	\$3,500			
Lecturer Taxi/parking	700	400	\$1,100			
Promo Items (backpack/paper)			\$2,000			
Total Expenses			\$40,567			

## TO DO LIST:

Hard Deadline  
1 December

- **DOE Funding:** MSU? Pitt?
- NSF Funding (done?)
- Coordinate with MCgen
- Think about speakers
- Prepare for ad & distribution





# Indian Institute of Technology Bombay

Research university in Mumbai, India :







The Women in Science Archive · Follow

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...

Today was supposed to be the day we celebrated the 72nd birthday of the great particle physicist Rohini Godbole, but we are very sad to communicate that she passed away just a few weeks ago, on the 25th of October, at the age of 71. She was a world leader in the field of the phenomenology of particle physics, which takes theoretical models of physics and determines how those will manifest in experiments like those undertaken at the world's major particle accelerators. She was also a staunch and tireless advocate for women in science, calling attention to the hiring disparities that existed in India during her lifetime, and co-authoring a book of 100 Indian biographies, *Lilavati's Daughters*. She will be missed.



## Proposal for ICTS-CTEQ School 2026

Unfortunately Declined

1. **Program Name:** ICTS-CTEQ School on QCD and Electroweak Phenomenology
  2. **Organizers:** (i) Fred Olness (Southern Methodist University, USA), [olness@smu.edu](mailto:olness@smu.edu)  
(ii) Huey-Wen Lin (Michigan St. University, USA), [hueywen@msu.edu](mailto:hueywen@msu.edu)  
(iii) Asmita Mukherjee (IIT Bombay), [asmita@phy.iitb.ac.in](mailto:asmita@phy.iitb.ac.in)  
(iv) V. Ravindran (IMSC), [ravindra@imsc.res.in](mailto:ravindra@imsc.res.in)  
(v) Abhay Deshpande (Stony Brook University and BNL), [abhay.deshpande@stonybrook.edu](mailto:abhay.deshpande@stonybrook.edu)  
(vi) Sunil Bansal (Panjab University) [sunil.bansal@cern.ch](mailto:sunil.bansal@cern.ch)
  3. **Name of the organizer who should be the key contact person:** Fred Olness
  4. **Proposed Duration:** 12 days: 10 days of lecture, and 2 free weekend days in the middle.
- (c) **LECTURERS:** We plan for 13 total lecturers, and anticipate approximately half will be domestic and half external. Each lecturer typically gives ~3 lectures; this allows time to develop the topics pedagogically.

Asmita Mukherjee (IIT Bombay, India),  
Rohini Godbole (IISC, India),  
Palash B Pal (Calcutta Univ., India),  
V. Ravindran (IMSc, India),  
Anurag Tripathi (IIT, Hyderabad)  
Amanda Cooper-Sarkar (Oxford)  
Huey-Wen Lin (MSU, USA),

Abhay Deshpande (SBU & BNL, USA),  
Pavel Nadolsky (SMU, USA),  
Dave Soper (Oregon, USA),  
C.P. Yuan (MSU, USA),  
Tomas Jezo (U. Muenster, Germany),  
Fred Olness (SMU, USA).

*We have contacted the above lecturers, and they have confirmed their availability.*



Professor Asmita Mukherjee  
IIT Bombay

4+1+4 Format

## BUDGET:

No ICTS Funding

NSF funding?? \$10K?? (no DOE)

Abhay may help

CTEQ Representation @ School



Professor Abhay Deshpande  
CFNS Stony Brook & BNL

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We'll need  
your help





Aleksander Kusina  
Institute of Nuclear Physics  
Polish Academy of Sciences

**nCTEQ**  
nuclear parton distribution functions



Andrzej Siodmok  
Institute of Physics  
Jagiellonian University

Cracow School of Theoretical Physics

Preliminary  
thoughts  
... only ...



Zakopane, Poland  
since 1961

© Jerzy F. Gierula, taken on 22 May 2005 at 16:10



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