Advances in Event Generation and Detector Simulation
Wednesday, October 7 from 1pm - 2:30pm Fermilab time
https://indico.fnal.gov/event/44870/sessions/16258/

Collider Event Generation
- Josh McFayden: Computational challenges for event generation in view of HL-LHC and beyond
- Enrico Bothmann: State-of-the-art event generators via new techniques and technologies

Precision Considerations
- Giulia Zanderighi: Event generators for NNLO/NLL and beyond
- Stefan Prestel: Electroweak effects and/or multi-boson processes

Detector Simulation
- Kevin Pedro: Machine learning for detector simulations
- Julia Yarba: Systematic effects in detector simulations

View from Neutrino Physics
- Noemi Rocco: Physics opportunities in neutrino event generation
- Steve Gardiner: Computational challenges for neutrino event generators

Computational Foundations
- Charles Leggett: Leveraging new computational architectures and strategies

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Ideas/Comments:

- Enter your thoughts here!

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Some themes from the discussions (from random scattered notes, not exhaustive, perhaps not correct even):

- Matrix element evaluation on CPUs is a computational bottleneck even if one is doing ML/GPU-based approaches.
- Can we sacrifice formal accuracy for computational gains?
- What about lower precision tools (e.g. < doubles on GPUs)
- What would you do if MC was blazing fast? (More reliable uncertainty studies, certainly. Or hadronization studies.)
- Reweighting is not a panacea if you don't have full coverage.
- Is there a role for parametrized NNs?