

UIC COLLOQUIUM

Department of Physics

Wednesday, March 4, 2020

“A Journey from Effective Field Theories to Quantum Algorithms”

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Much of our success in precision calculations within the Standard Model of particle physics rely on the concept of effective field theories, which allow to focus calculations on the distance scales relevant for a given calculation. The journey therefore starts by introducing the general concept of effective field theories. I will provide several examples of how such effective field theories are used nowadays to make precise predictions for observables at the Large Hadron Collider. I will then continue our trip by explaining how effective field theories help predict observables involving a large number of final state particles, using tools commonly referred to as parton showers. The final destination will be the mysterious land of quantum computing and quantum algorithms, where I will introduce the audience to new ideas for making predictions for high multiplicity observables.

The Department of Physics Colloquium will be held at 3pm in 238 SES.

**Refreshments will be served from 2:45 pm to 3pm outside of room 238 SES*