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Particle Physics in Paris

Mardi 23 Fevrier 2021, 16 :00
IHP, Seminar via zoom https ://ijclab.zoom.us/j/94900481972
Domaines : hep-ph—hep-th

Titre : *The Hidden Geometry of Particle Collisions*

Orateur : **Jesse Thaler (MIT)**

Résumé : *In this talk, I explain how various concepts and techniques in quantum field theory and collider physics can be naturally translated into a new geometric language. Using the energy mover's distance, which quantifies the minimal amount of "work" required to rearrange one event into another, we can define a distance between pairs of collider events. This distance can then be used to triangulate the "space" of collider events and rigorously define various geometric objects. Many well-known collider observables, jet algorithms, and pileup mitigation schemes have a simple geometric interpretation, as does the important concept of infrared and collinear safety. Intriguingly, these ideas can be lifted from a distance between events into a distance between theories, with potential relevance for visualizing and interpreting data from the LHC.*