THE PHYSICS COLLOQUIUM

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Nijenborgh 4, **Lecture Hall 5111.0080**

Collider Physics Innovations Powered by Machine Learning

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Modern day collider experiments have amassed billions of particle collisions that used to understand particle interactions. Due to the complex nature and rarity of some physics processes, modern data analysis tools have become an important pillar for scientific research.

In this talk I will highlight the unique aspects of data analysis in collider physics and how the combination of modern machine learning methods with decades of experimental and theoretical innovation are combined to accelerate scientific discovery.

These include the use of machine learning to correct physics measurements for detector effects (unfolding), fast detector simulation, and anomaly detection of new physics processes.