

Union College Colloquium

Enhancing Scientific Research Utilizing High-Performance & High-Throughput Computing: An Overview With Uses In Nuclear & Particle Physics

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Abstract

Nowadays, everything is about speed and performance power. While laptops and smart devices have the ability to outperform humans, they are still limited in their abilities when it comes to extremely complex calculations or handling massive amounts of data. Since progress in science, within every field, requires these complex calculations and with an ever increasing amount of data gathered during experiments, there is a strong need for an increase in speed and performance power beyond what is currently being used. This talk will give an overview of how scientists are enhancing their research by tackling these issues directly through High-Performance Computing (HPC) and/or High-Throughput Computing (HTC). I will discuss in detail how each are performed respectively, as well as provide examples of how they both have been used within the nuclear & particle physics field along side my current research on the search for "exotic" states of matter.