Colloquium

From Quarks to Gluons to the World Around Us: Advancing Quantum Chromodynamics by Probing Nucleon Structure

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Wednesday, January 29 ◆ 4 P.M.
Room 118 Nieuwland Science Hall
Refreshments @ 3:30 in 202 NSH

Quantum chromodynamics (QCD) offers a powerful and elegant description of one of the fundamental forces in nature, describing the interactions of the quarks and gluons that make up the protons and neutrons of everyday matter. The richness and challenge of QCD lie in its emergent property of confinement: the quark and gluon degrees of freedom in the theory are not ones with which we can work directly in the laboratory. After the development of QCD in the last quarter of the 20th century, we are now in the early years of an exciting new era in which much more quantitative QCD calculations can be tested against data. While there is more than one way to keep pushing forward our understanding, the proton, as a fundamental bound state of QCD, can serve as an excellent laboratory in which to probe the complexities of the strong force as we learn more about the very matter of which we ourselves are made.

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