Understanding quark confinement: an ascent from lower dimensions

Presented by:

Dr. Dimitra Karabali

Department of Physics and Astronomy
Lehman College
The City University of New York

Thursday, April 29, 2010 at 1:00 PM

Namm 804

Abstract

Quantum Chromodynamics (QCD), the theory describing strong interactions, has been extensively studied and its perturbative aspects are well understood and in agreement with high-energy experiments. However, quantitative understanding of key features such as confinement and mass gap has long remained elusive. I shall review our analysis of these in a simpler, yet nontrivial context, the (2+1)-dimensional Yang-Mills theory. Physically relevant parameters such as the string tension are obtained and found to be in excellent agreement with numerical simulations.