

# University of Miami, Physics Department Colloquium

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**Date:** Wednesday, Mar 1, 2023  
**Time:** 4:00 pm – 5:00 pm  
**Location:** Wilder Auditorium – Rm 112, Knight Physics Building

## Revealing the Secrets of the Universe via the Spectrum and Structures of Hadrons

**Dr. Lei Guo**

Florida International University

### **Abstract**

Much like the spectroscopy of atoms and molecules helped us understand the underlying forces and the theory behind it: Quantum Electrodynamics (QED), the strong interaction that binds almost all visible matter together can be probed by investigating the spectrum and internal structures of hadrons, made up by quarks. While the explosion of particle discoveries half a century ago laid down the foundation our current understanding of Quantum Chromodynamics (QCD), the progress of finding new particles seems to have been slowed down for the last few decades. In this talk, we will discuss the various searches for previously unknown particles at Jefferson Lab, located at Newport News, Virginia, using a electron/photon beam incident on hydrogen target. In particular, we discuss the search for baryons with multiple strange quarks, mesons that decay to proton-antiproton pairs, as well as hadrons that have quantum numbers forbidden by naïve constituent quark models. We will also discuss the possibilities of conducting such searches at the future Electron Ion Collider (EIC).