The theory of Quantum Chromo Dynamics (QCD) describes the interactions of quarks and gluons inside the building blocks of normal matter. While an analytical solution to QCD in the energy regime of normal matter eludes us, numerical calculations known as Lattice QCD have provided ever improving results. Among these is the expectation that there should be a new class of subatomic particles built of quarks where the gluons themselves contribute directly to the properties of the particles. In addition, a number of these have a quantum description that is excluded for normal quark-constituent particles. At Jefferson Lab, we have built and commissioned a new facility centered on the GlueX experiment to search for these so-called exotic particles, and ultimately map out their properties. These studies will provide information on the role of excited “glue” in the spectrum of quarks, which in turn can provide information on the strong confining forces in QCD. In this talk I will describe the recent work in Lattice QCD, historical results on Gluonic Excitations, and the early results from the GlueX experiment at Jefferson Lab. Finally, I will discuss the path in GlueX to discover and study these new particles.

TIME: 4:00-5:00 pm, Thursday, October 18, 2018
(refreshments: 3:30 pm upstairs by the 4th floor pantry)

PLACE: 101 Corcoran Hall, GWU
725 21st Street, NW

METRO STATION: GWU/FOGGY BOTTOM (BLUE & ORANGE LINES)