Unraveling the Mystery of the GeV Excess

The excess of GeV gamma rays in recent Fermi-LAT observations of the inner galaxy could potentially be due to dark-matter annihilation. However, several alternative astrophysical explanations are also possible. In this talk, Dr. Lee will discuss analyses of the Fermi data that may test some of these astrophysical scenarios. For example, statistical analyses of the photon counts may constrain the contribution of unresolved point sources (such as millisecond pulsars) to the excess, and wavelet-based analyses could constrain scenarios involving astrophysical injections of cosmic rays at the Galactic Center. Performing such analyses will be a crucial and necessary step on the path to understanding the viability of the dark-matter interpretation of the excess.