

Physics Department Colloquium

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Friday, August 24th 2018
2:00 PM in SE 319A

Outer Gas Disks: Probes of dark matter sub-structure to LIGO sources

The outer gas disks of spiral galaxies extend far beyond the stellar disk, are cold, have low metal content and a low level of star formation. Because they are cold and extended, they can serve as ideal “detectors” of the gravitational signatures of dark-matter dominated dwarf galaxies. I will first review our work in analyzing disturbances in outer gas disks to characterize galactic companions. Since low-metallicity star formation can produce more detectable compact binaries than typical star formation, outer gas disks may be conducive to producing a rich population of binary black holes. I will also discuss our recent work on the contribution of outer gas disks to LIGO’s observable population of binary black holes.