**Cohesive mechanisms transport large HIV-1 capsids into the nucleus of living cells**

Ashwanth C. Francis, Ph.D.

Assistant Professor, Department of Biological Science

Florida State University

To complete its replication, HIV-1 must enter the nucleus of non-dividing cells and integrate a copy of its vDNA into the host genome. The process of nuclear entry is mediated by interactions between the viral capsid and host proteins that make up the nuclear pore complex (NPC). The size of the capsid is generally too large (~60 x 30 x 80 nm) to pass through the comparably sized (~63 nm) pores formed by the NPCs. Nevertheless, recent work has suggested that capsids can enter through the gel-like meshwork of the central NPC channel through cohesive interactions with the ‘phenylalanine and glycine (FG)’ repeats enriched in this component. The mechanisms of how the capsid passes through the NPCs, becomes released into the nucleoplasm, and finds actively transcribing regions of the nucleus for vDNA integration remain unclear. In this seminar, I will discuss new findings from my lab that shed light on how HIV-1 capsid exploits novel cohesive mechanisms of the cell to transport the vDNA to its integration sites inside the nucleus.