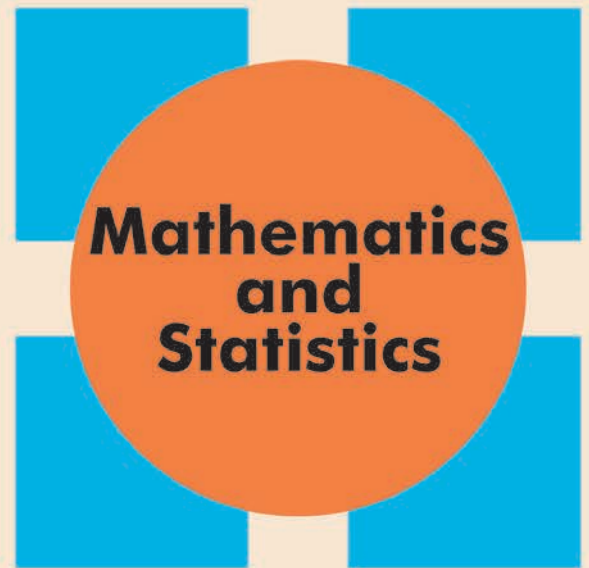


# Math Grad Seminar

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## Fundamental Groups of Unitary Orbits



Date: October 31, 2016

Time: 12:30 - 1:30 PM

Room: Math Lounge 307.20

**Abstract:** Let  $A$  be a complex  $n \times n$  matrix. The unitary group  $\mathcal{U}_n$  acts on the space of all  $n \times n$  matrices  $\mathcal{M}_n$  via conjugation. The topological properties of the orbit of  $A$ , denoted by  $\mathcal{U}(A)$ , are of great interests both from the standpoint of linear algebra and topology. In this talk, I will present a method formulated by Doug Farenick in 1989 to compute fundamental groups of  $\mathcal{U}(A)$ . This simple yet elegant method helps to determine whether an orbit of a matrix is simply connected or not. The talk will be on chalk-board and will be based on some elementary knowledge of matrices and topology.