Talk Title: Realising finite sets of rational numbers as mapping degree sets

Abstract: Let M and N be two closed oriented manifolds of the same dimension. A very first step to understand maps from M to N is to consider the set of mapping degrees, denoted by D(M,N).

In a recent work, C. Newofytidis, S. Wang, and Z. Wang have shown that there exists an infinite subset of integers containing 0 which cannot be realized as D(M,N), for any closed oriented n-manifolds M and N, and raised the question of whether any finite subset of integers containing 0 can be so realized. In this lecture we address that question and show that:

1.- Given A, a finite subset of integers containing 0, there exist closed oriented 3-manifolds M and N, such that D(M,N)=A.

2.- Given A, a finite subset of rational numbers containing 0, and an integer n, there exist n-connected closed oriented manifolds M and N of the same dimension such that the set of mapping degrees of their rationalizations M_0 and N_0, namely D(M_0, N_0), is A.