



Discrete Mathematics Seminar

* There are two talks today.*

* The time of this talk has been changed to 12:30-1:30 PM.*

Time: Friday, April 21, 2023, 12:30-1:30 PM
Title: Endomorphism universality of graphs
Speaker: Dr. Kolja Knauer, Universitat de Barcelona
Location: 331 Derrick Hall

Abstract:

Just like the automorphism group, the endomorphisms of a graph form a monoid under composition and it has been known since the 60s that every finite monoid is isomorphic to the endomorphism monoid of a graph. This motivates the question whether a given class G of graphs is "rich enough" to represent a given class M of monoids as its endomorphism monoids, i.e., is G universal for M . We show that bounded expansion graphs are universal for all monoids, answering a question of Nešetřil and Ossona de Mendez from 2012, subcubic graphs are universal for commutative idempotent monoids, resolving a conjecture of Babai and Pultr from 1980, but no minor-closed class is universal for these monoids, no class excluding a topological minor is universal for the class of completely regular monoids. This is joint work with Gil Puig i Surroca.