



DEPARTMENT OF
MATHEMATICS
Illinois State University

ISU Algebra Seminar

Time: Thursday, November 3, 1:00 – 1:50pm

Zoom Room ID: 948 5899 6931

Passcode: ISU

Zoom Room Link: <https://illinoisstate.zoom.us/j/94858996931>

Speaker: Keir Lockridge (Gettysburg College)

Title: Fuchs' Problem for Group Endomorphisms

Abstract: In the 1960s, L. Fuchs posed the following question: which groups occur as the group of units in a ring? Such groups are called realizable. Though many authors have made significant progress on this problem, it remains open. In this talk, we will discuss a related question: for realizable groups G , when is there a ring R with unit group G such that every group endomorphism of G is induced by a ring endomorphism of R ? We will answer this question for four common classes of groups: torsion-free abelian groups, groups of odd order, torsion abelian groups, and finitely generated abelian groups. We will also discuss recent progress for finite nonabelian groups (of even order). This is ongoing work with Sunil Chebolu of ISU.

About the Speaker: Keir Lockridge earned his Ph.D. in mathematics from the University of Washington in 2006, and he now teaches at Gettysburg College. His primary mathematical interests include ring theory, number theory, and topology. In his spare time, he enjoys experimenting with fermentation and other culinary adventures.