

ISU ALGEBRA SEMINAR



Date: Wednesday, September 19, 2018

Time: 10:00 AM-10:50 AM

Location: STV 310

Speaker: Sunil Chebolu

Talk title: On the multiplicative groups of fields

Abstract: We provide a conjectural solution to the following two fundamental open problems.

1. Classify all fields that have indecomposable multiplicative groups.
2. Classify all indecomposable abelian groups that are multiplicative groups of fields.

Specifically, we show that both these problems reduce to determining whether there is an infinite field with an indecomposable multiplicative group. We conjecture that there is no such field, and we provide evidence to support this conjecture.

We also determine, in every characteristic, whether there is a group that is the group of units of a ring but not the multiplicative group of any field, and we find all finite commutative rings that have an indecomposable multiplicative group.

This is joint work with Keir Lockridge.

