

1116-VF-853

**Tien Y Chih\*** ([tien.chih@newberry.edu](mailto:tien.chih@newberry.edu)), Newberry College, 2100 College St, Newberry, SC 29108. *The Inverse Semigroups of Graphs.*

Automorphism groups have long been a part of the study of graphs as a means of understanding the symmetry of graphs. However, this approach to understanding symmetry hides much of the partial or local symmetries that may be present in a graph, but not reflected in the automorphism group. As a result, many graphs with very different local symmetries have identical automorphism groups, and much research has been done to distinguish such graphs which gives rise to notions such as fixing and distinguishing numbers.

In this talk, the author presents a notion of studying partial symmetries of graphs with an inverse semigroup. Inverse semigroups have been used to study partial symmetries in other areas of mathematics. We define 4 possible inverse semigroups for a graph, describe the idempotent lattice of these inverse semigroups, and describe the ideals and ideal lattice of these graphs. (Received September 14, 2015)