1122-17-85 **Jonathan D. H. Smith** and **Stefanie G. Wang*** (sgwang@iastate.edu). *Isomorphism problems for linear quasigroups.*

For a commutative ring S, a quasigroup Q is said to be S-*linear* if Q has an S-module structure, with $x \cdot y = x^R + y^L$ for S-automorphisms R and L of Q. By definition, homomorphisms of S-linear quasigroups are module homomorphisms that respect the quasigroup structure.

Our primary concern is the isomorphism problem for finitely generated $\mathbb{Z}$-linear quasigroups. While finite-dimensional $\mathbb{C}$-linear quasigroups are classified up to isomorphism by ordinary characters, non-isomorphic finitely generated $\mathbb{Z}$-linear quasigroups may complexify to isomorphic $\mathbb{C}$-linear quasigroups. We present a subclass of $\mathbb{Z}$-linear quasigroups where isomorphic complexifications imply a permutational similarity of the $\mathbb{Z}$-linear quasigroups involved. (Received August 08, 2016)