

Factorization in Finitely-Presented Monoids

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Abstract. We discuss arithmetic properties of factorizations of elements into products of generators, in monoids given with explicit presentations. After relating and comparing this perspective to the more usual approach of factoring into products of atoms, as well as other more recent alternatives, we explore how the relations in the presentation of a monoid affect factorization. In particular, we construct a large class of non-commutative fully elastic monoids, show that any finitely-presented cancellative normalizing monoid satisfies the Structure Theorem for Unions, and construct examples exhibiting unusual factorization behavior.

The talk is based on joint work with Alfred Geroldinger.

About the speaker. Zak Mesyan's research interests lie in non-commutative algebra, and he has published over 30 papers on rings, groups, semigroups, and linear algebra. He obtained a bachelor's degree from Brown University (2001), and a Ph. D. from the University of California, Berkeley (2006), under the supervision of George Bergman. After postdoctoral work at the University of Southern California and Ben Gurion University of the Negev, he settled at the University of Colorado, Colorado Springs, in 2010.

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