

Strong factorization and the ordered k -universal transversal property

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A semigroup S with set of idempotents E and group of units G is said to be *strongly factorizable* if $S = EG$. In this work, we consider the special case that S is a semigroup of transformations over some finite set Ω .

We relate the strong factorization property to a property of permutation groups, called the *k -universal transversal property*. With this connection, we provide an (almost) complete classification of the permutation groups G on Ω such that the transformation semigroup $S_t := \langle G, t \rangle$ is strongly factorizable for all transformations t with $|\Omega t| = k$ for a given $k \in \mathbb{N}$.

This is joint work with João Araújo (Universidade Nova de Lisboa) and Peter J. Cameron (University of St Andrews).

References

- [1] ARAÚJO, JOÃO; BENTZ, WOLFRAM; CAMERON, PETER J., *Primitive Permutation Groups and Strongly Factorizable Transformation Semigroups*, Journal of Algebra no 565, 513-530 (2021).

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