Some results on almost factorizable semigroups

Mária B. Szendrei

Bolyai Institute, University of Szeged, Aradi vértanúk tere 1, H-6720 Szeged, Hungary

`m.szendrei@math.u-szeged.hu`

A factorizable inverse monoid can be identified, up to isomorphism, with an inverse submonoid M of a symmetric inverse monoid $I(X)$ where each element of M is a restriction of a permutation of X belonging to M. The semigroup analogue of this notion is that of an almost factorizable inverse semigroup. Within the class of inverse semigroups, they play a role dual to that of E-unitary inverse semigroups:

Result 1   (1) *The almost factorizable inverse semigroups are just the homomorphic images (or, equivalently, the idempotent separating homomorphic images) of semidirect products of semilattices by groups.*

   (2) *Each inverse semigroup is embeddable in an almost factorizable one.*

Result 2 *An inverse semigroup is E-unitary and almost factorizable if and only if it is isomorphic to a semidirect product of a semilattice by a group.*

Result 1 was generalized for orthodox, for locally inverse and for weakly ample semigroups. For the last class, also the analogue of Result 2 was established.

After recalling the appropriate notion of an almost factorizable semigroup in these classes and their most important properties, we discuss in the talk whether the analogue of Result 2 holds for orthodox and for locally inverse semigroups. Finally, we consider the question of how to define almost factorizability within the class of left restriction semigroups.