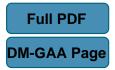
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# POINTED PRINCIPALLY ORDERED REGULAR SEMIGROUPS

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#### Abstract

An ordered semigroup S is said to be *principally ordered* if, for every  $x \in S$  there exists  $x^* = \max \{y \in S \mid xyx \leq x\}$ . Here we investigate those principally ordered regular semigroups that are *pointed* in the sense that the classes modulo Green's relations  $\mathcal{L}, \mathcal{R}, \mathcal{D}$  have biggest elements which are idempotent. Such a semigroup is necessarily a semiband. In particular we describe the subalgebra of (S; \*) generated by a pair of comparable idempotents that are  $\mathcal{D}$ -related. We also prove that those  $\mathcal{D}$ -classes which are subsemigroups are ordered rectangular bands.

**Keywords:** regular semigroup, principally ordered, naturally ordered, Green's relations.

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