

Publicacions més rellevants de la línia de recerca:
Teoria d'anells i de mòduls

Referència: Angeleri Hügel, L., Bazzoni, S. and Herbera, D. A solution to the Baer splitting problem. *Transactions of the American Mathematical Society*, **360(5)** (2008), pp. 2409–2421.

Abstract: Let R be a commutative domain. We prove that an R -module B is projective if and only if $\text{Ext}_R^1(B, T) = 0$ for any torsion module T . This answers in the affirmative a question raised by Kaplansky in 1962.

Referència: Antoine, R. Nilpotent elements and Armendariz rings. *Journal of Algebra*, **319(8)** (2008), pp. 3128–3140.

Abstract: We study the structure of the set of nilpotent elements in Armendariz rings and introduce nil-Armendariz as a generalization. We also provide some new examples by proving that if D is a K -algebra and $n \geq 2$, the coproduct $D *_K K\langle x \mid x^n = 0 \rangle$ is Armendariz if and only if D is a domain with $K \setminus \{0\}$ as its group of units. Finally we study the conditions under which the polynomial ring over a nil-Armendariz ring is nil-Armendariz, which is related to a question of Amitsur.

Referència: Cedó, F. and Okniński, J. Semigroups of matrices of intermediate growth. *Advances in Mathematics*, **212(2)** (2007), pp. 669–691.

Abstract: Finitely generated linear semigroups over a field K that have intermediate growth are considered. New classes of such semigroups are found and a conjecture on the equivalence of the subexponential growth of a finitely generated linear semigroup S and the nonexistence of free noncommutative subsemigroups in S , or equivalently the existence of a nontrivial identity satisfied in S , is stated. This ‘growth alternative’ conjecture is proved for linear semigroups of degree 2, 3 or 4. Certain results supporting the general conjecture are obtained. As the main tool, a new combinatorial property of groups is introduced and studied.