Factorizations of polynomials with integral non-negative coefficients

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We study the structure of the commutative multiplicative monoid $\mathbb{N}_0[x]^*$ of all the non-zero polynomials in $\mathbb{Z}[x]$ with non-negative coefficients. We first recall some important tools for investigating non-unique factorizations in monoids (sets of lengths, elasticity, catenary degrees...) showing that $\mathbb{N}_0[x]^*$ is surprisingly very far from being factorial. Then, we describe prime elements and prime ideals of $\mathbb{N}_0[x]^*$ and we conclude with some open problems.

This talk is based on a joint work with Alberto Facchini.

References

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