ON THE CONDUCTOR OF ABHYANKAR-MOH SEMIGROUPS

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We say that an additive submonoid of $\mathbb{N}$ is an *Abhyankar-Moh semigroup* if it is finitely generated by a *characteristic sequence* $(v_0, \ldots, v_h) \in \mathbb{N}^{h+1}$ satisfying the following inequality $\gcd(v_0, \ldots, v_{h-1})v_h < v_0^2$. These semigroups arise naturally when dealing with plane curves coming as embedded lines.

One can check that the conductor of an Abhyankhar-Moh semigroup with characteristic sequence $(v_0, \ldots, v_h)$ is an even number in the interval $[v_0 - 1, (v_0 - 1)(v_0 - 2)]$. In [1], Barrolleta, García Barroso and Płoski completely described all such semigroups with maximum conductor. The idea of this talk is to present a proof showing how to construct Abhyankhar-Moh semigroups for every possible conductor $c \in [v_0 - 1, (v_0 - 1)(v_0 - 2)] \cap 2\mathbb{Z}$, when v_0 is an even number.

This is based on [2] which is a joint work with Evelia R. García Barroso, Juan Ignacio García García and Alberto Vigneron Tenorio

References

[1] R. D. Barrolleta, E. R. García Barroso, and A. Płoski. *On the Abhyankar-Moh inequality*. Univ. Iagel. Acta Math. 52 (2015), 7–14.
[2] E. R. García Barroso, J. I. García-García, L. J. Santana Sánchez & A. Vigneron-Tenorio. *Conductors of Abhyankar-Moh semigroups of even degree*. Pre-print: `https://doi.org/10.48550/arXiv.2209.04232`

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