

On the distribution of the zeros of some polynomial maps $(P, Q): \mathbb{R}^2 \rightarrow \mathbb{R}^2$

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Abstract. Consider a polynomial map $(P, Q): \mathbb{R}^2 \rightarrow \mathbb{R}^2$ of degree (n, m) with $m \geq n$ and assume that it has nm different real zeros. We study the distribution of these nm zeros in the plane \mathbb{R}^2 for $n = 1, 2, 3$ and $m \leq 4$.

In particular, these results provide information about the distribution of the equilibrium points of the polynomial differential systems $\dot{x} = P(x, y)$ and $\dot{y} = Q(x, y)$, when the polynomial map $(P, Q): \mathbb{R}^2 \rightarrow \mathbb{R}^2$ satisfies the previous assumptions.

This is a joint work with Claudia Valls.