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Abstracts of Short Communications and Posters

Section:

4. Algebraic Geometry

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Embeddings of curves in the plane

Let $K[x,y]$ be the polynomial algebra in two variables over a field K of characteristic 0. Here we contribute toward a classification of two-variable polynomials by classifying (up to an automorphism of $K[x,y]$) polynomials of the form $x^n + y^m + \sum_{im+jn\leq mn} c_{ij}x^iy^j$, $c_{ij} \in K$. Our classification has several applications to the study of embeddings of algebraic curves in the plane. In particular, we show that for any $k \geq 2$, there is an irreducible curve which has at least k inequivalent embeddings in $\mathbf{C}^2$. Also, upon combining our method with a well-known theorem of Zaidenberg and Lin, we show that one can decide "almost" just by inspection whether or not a polynomial fiber $\{p(x,y)=0\}$ is an irreducible simply connected curve.