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Invariant algebraic curves and rational first integrals for planar polynomial vector fields

We present three main results. The first two provide sufficient conditions in order that a planar polynomial vector field in $\mathbb{C}^2$ has a rational first integral, and the third one studies the number of multiple points that an invariant algebraic curve of degree n of a planar polynomial vector field of degree m can have in function of m and n. These results were obtained together with Professor Xavier Chavarriga.