

New examples of free projective curves

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SUMMARY

A projective plane curve is called free when its module of tangent derivations is a free module (generated globally by 2 derivations). This module is a fundamental object intervening in many branches of mathematics but yet still poorly understood. The link between the freeness of this module and the singularities of the curve is the subject of numerous and exciting conjectures, in particular Artal-Cogolludos conjecture about pencil of curves.

In 2015, I proved that the union of the singular curves of a generic pencil is free as suggested by the Artal-Cogolludo conjecture. Generalizing this result to any kind of pencils, I will give a necessary and sufficient condition for a union of component of curves of the pencil to be free. This leads to new examples of free curves.

This is a joint work with R. Di Gennaro, G. Ilardi, R. Miro-Roig and H. Schenck.

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