

Simple derivations and foliations with one singularity

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A number of results, in recent years, have been concerned with foliations with one singularity on the complex projective plane. Thus, [1] presents a classification of foliations of degree 2 with one singularity, while [2, Theorem 1, p. 192] introduces a family of foliations with one singularity of algebraic multiplicity one. In this talk I will present a new family of foliations of degree $d \geq 4$ whose unique singularity has multiplicity $d - 1$. The generic foliations in this family have trivial isotropy groups and a unique invariant algebraic curve, thus giving rise to a new family of simple derivations of the affine plane.

References

- [1] CERVEAU, D. AND DÉSSERTI, J. AND GARBA BELKO, D. AND MEZIANI, *Géométrie classique de certains feuilletages de degré deux*, Bull. Braz. Math. Soc. (N.S.), **41**, (2010), 161–198.
- [2] ALCÁNTARA, C. R., *Foliations on $\mathbb{C}\mathbb{P}^2$ of degree d with a singular point with Milnor number $d^2 + d + 1$* , Rev. Mat. Complut., **31**, (2018), 187–199.