

Algebraic desingularization of some linear foliations

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Given a singular foliation on a manifold M , defined as an involutive subsheaf of the module of vector fields on M , Laurent-Gengoux-Lavau-Strobl showed that in certain cases, this involutive subsheaf can be algebraically desingularized: given a resolution of the subsheaf by sections of vector bundles, one can lift the Lie bracket of the singular foliation to a higher Lie bracket on the resolution. The general procedure is non-constructive.

One particular class of foliations admitting such a desingularization is the class of singular foliations induced by linear Lie group actions on a vector space. After briefly sketching the construction, I will give some examples of such desingularizations.