VIRTUAL EAST-WEST SCV SEMINAR

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Real integral manifolds for holomorphic vector fields in $\mathbb{C}^2$

We provide a complete classification of (singular at the origin) holomorphic vector fields in $\mathbb{C}^2$ which admit a (Levi-nonflat) 3-dimensional invariant CR-manifold. In strong contrast with the classical Poincaré-Dulac classification theory (and its numerous developments), it appears that the normal forms for holomorphic vector fields that we obtain are all analytic (that is, small divisors do not show up, in strong contrast with the general theory). Also, somewhat surprisingly, "almost" all the possible resonances do not show up either. This results in a short and elegant classification of all such possible vector fields. This work is joint with M. Kolar and B. Lamel.