On germs of holomorphic foliations admitting sectorial first integrals

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Abstract: In this work, we study the interplay between the dynamics of a holomorphic vector field near a singular point in dimension two and the behavior of its orbits in some sectors obtained from a transverse section to a separatrix. More precisely, we address the question: Under wich circumstances the existence of a first integral in some sector assures the existence of a first integral in a neighborhood of the singularity. We addres this problem by combining some holomorphic foliations holonomy techniques together with some classical one variable asymptotic expansion techmiques.

Joint work with: Bruno Scardua (UFRJ).

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