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On the integrability of surface vector fields and of polynomial vector fields in $\mathbb{R}^n$ or $\mathbb{C}^n$

The talk will be a survey on some recent results about the integrability of the differential equations or vector fields.

We will put special emphasis, first on the integrability of the vector fields on surfaces, and second on the Darboux theory of integrability for the polynomial differential equations in $\mathbb{R}^n$ or $\mathbb{C}^n$.

Finally we shall present some applications of the integrability.