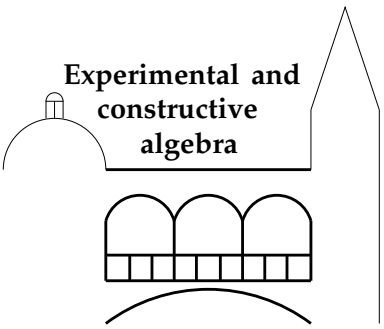
Graduiertenkolleg

Experimentelle und konstruktive Algebra



Kolloquiumsvortrag

Dienstag, 03. Juli 2018, 14:00 Uhr, Hörsaal V

Niclas Kruff (Lehrstuhl A für Mathematik):
Attracting invariant varieties

Important objects in control theory are controlled invariant varieties. Given a radical ideal $I \subseteq \mathbb{K}[x] := \mathbb{K}[x_1, \ldots, x_n]$, $\mathbb{K} \in \{\mathbb{R}, \mathbb{C}\}$, a polynomial control matrix $g \in \mathbb{K}[x]^{n \times m}$ and a vector field $f \in \mathbb{K}[x]^n$ we want to find $\alpha \in \mathbb{K}[x]^m$ such that $V := \mathcal{V}(I)$ is invariant for the differential equation

$$\dot{x} = f(x) + g(x)\alpha(x) = (f + g\alpha)(x).$$

In this case V is called a controlled invariant variety.
Motivated by this definition we study attracting invariant varieties. Given a compact connected component $\widetilde{V}$ of a smooth variety $V \subseteq \mathbb{R}^n$ we determine vector fields $f \in \mathbb{R}[x]^n$ such that $\widetilde{V}$ is attracting for $\dot{x} = f(x)$ in a suitable neighborhood of $\widetilde{V}$.

Wir laden alle Interessierten herzlich ein.