Mathematics > Algebraic Geometry

A'Campo curvature bumps and the Dirac phenomenon near a singular point

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The level curves of an analytic function germ almost always have bumps at unexpected points near the singularity. This profound discovery of N. A'Campo is fully explored in this paper for $f(z,w)\in \C\{z,w\}$, using the Newton-Puiseux infinitesimals and the notion of gradient canyon. Equally unexpected is the Dirac phenomenon: as $c\ra 0$, the total Gaussian curvature of $f(z,w)=c$ accumulates in the gradient canyons.

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