

FORMAL CLASSIFICATION OF DULAC GERMS AND EPSILON-NEIGHBORHOODS OF ORBITS

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Abstract: We give formal classification results for parabolic Dulac germs in the class of power-logarithm transseries. Parabolic Dulac germs appear as first-return maps around hyperbolic polycycles, and admit a power-logarithm asymptotic expansion. We further show how formal invariants can be read from the initial part of the transasymptotic expansion of the length of the epsilon-neighborhood of just one orbit. The crucial step is the construction of the (formal) Fatou coordinate for a parabolic Dulac germ. This is a joint work with Pavao Mardešić, Jean-Philippe Rolin and Vesna Županović.