## ATYPICAL VALUES AND MORSE-SARD TYPE THEOREM

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We describe the relation between four different types of regularity conditions which have been used in the literature in order to control the asymptotic behaviour of semi-algebraic mappings. We prove a new Morse-Sard type theorem for the asymptotic critical values of semi-algebraic mappings. For polynomial mappings, we also present some algebraic characterizations of regularity at infinity.

## References

- [1] Chen, Y., Dias, L. R. G. and Tibăr, M. On Newton non-degeneracy of polynomial mappings, preprint, **2012**
- [2] Dias, L. R. G., Ruas, M. A. S. and Tibăr, M. Regularity at infinity of real mappings and a Morse-Sard theorem, J. Topology, 2012.
- [3] Gaffney, T. Fibers of polynomial mappings at infinity and a generalized Malgrange condition, Compositio Math., 1999.
- [4] Jelonek, Z. On the generalized critical values of a polynomial mapping, Manuscripta Math., 2003.
- [5] Kurdyka, K., Orro, P. and Simon, S. Semialgebraic Sard theorem for generalized critical values, J. Differential Geom., 2000.
- [6] Rabier, P. J.Ehresmann fibrations and Palais-Smale conditions for morphisms of Finsler manifolds, Annals of Mathematic., 1997.

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