NEW CHARACTERIZATION OF TRIVIAL MAPS IN 3-DIMENSIONAL REAL MILNOR FIBERS

TACIANA OLIVEIRA SOUZA

ADVISOR: DENISE DE MATTOS

JOINT WORK WITH: M. A. B. HOHLENWERGER AND R. ARAÚJO DOS SANTOS

In the book "Singular points of complex hypersurfaces", [1], John W. Milnor studied singular points on hypersurfaces introducing a locally trivial fiber bundle, called *the Milnor fibration*, associated to each singular point. He shows there are such locally trivial fiber bundle for germs of holomorphic maps and for germs of real analytic maps. We are interested specially in the real case, where Milnor considers a real polynomial mapping $f : (\mathbb{R}^n, 0) \to (\mathbb{R}^p, 0)$. Milnor proposed to call the singularity *trivial* if the fiber of the Milnor fibration associated is diffeomorphic to the disk, and he asked [1, p.100]:

"For which dimensions $n \geq p \geq 2$ do non-trivial examples exist?"

Church and Lamotke largely answered this question in [2]. In [3], we extend the characterization of trivial map germs for the real Milnor fibration started by Church and Lamotke, our main result covers all cases on the 3-dimensional real Milnor fibers.

REFERENCES

[1] J. Milnor, *Singular Points of Complex Hypersurfaces*, Ann. of Math. Studies 61, Princeton University Press, (1968).
[2] P. T. Church and K. Lamotke, *Non-trivial polynomial isolated singularities*. Nederl. Akad. Wetensch. Proc. Ser. A 78=Indag. Math. 37 (1975), 149-154.
[3] T. O. Souza, M. A. B. Hohlenwerger, D. De Mattos, R. Araújo dos Santos, *New characterization of trivial maps in 3-dimensional real Milnor fibers*, JP Journal of Geometry and Topology, Vol.12, (2012), 207-217 .

(Taciana Oliveira Souza) ICMC-USP
E-mail address: `tacioli@icmc.usp.br`

(Denise De Mattos) ICMC-USP
E-mail address: `deniseml@icmc.usp.br`