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Topological Aspects Of Finitely Determined Map Germs

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Abstract

We consider the topological classification of finitely determined map germs $f : (\mathbb{R}^n, 0) \to (\mathbb{R}^p, 0)$, with $n < p$. According to a theorem due to Fukuda, f has a cone structure over its *link*, obtained as the intersection of the image of f with a sufficiently small sphere $\mathbb{S}^{p-1}_\varepsilon$ centered at the origin in $\mathbb{R}^p$. By Fukudas theorem, the preimage $\tilde{\mathbb{S}}^{n-1}_\varepsilon$ of $\mathbb{S}^{p-1}_\varepsilon$ is diffeomorphic to the $(n-1)$-sphere $\mathbb{S}^{n-1}$ and the restriction of f to $\tilde{\mathbb{S}}^{n-1}_\varepsilon$ is a topologically stable map (C^∞-stable if we are in the nice dimensions). We will discuss some of the results obtained in the case $n = 2$, where the link is a stable curve in the sphere and the Gauss word provides a complete invariant.