

WRINKLING OF SMOOTH MAPPINGS III FOLIATIONS OF CODIMENSION GREATER THAN ONE

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To Jürgen Moser on his 70-th birthday

0. Introduction

This is the third paper in our Wrinkling saga (see [EM1], [EM2]). The first paper [EM1] was devoted to the foundations of the method. The second paper [EM2], as well as the current one are devoted to the applications of the wrinkling process. In [EM2] we proved, among other results, a generalized Igusa's theorem about functions with moderate singularities.

The current paper is devoted to applications of the wrinkling method in the foliation theory. The results of this paper essentially overlap with our paper [ME], which was written twenty years ago, soon after Thurston's remarkable discovery (see [Th1]) of an h -principle for foliations of codimension greater than one on closed manifolds. The paper [ME] contained an alternative proof of Thurston's theorem from [Th1], and was based on the technique of surgery of singularities which was developed in [E2]. The proof presented in this paper is based on the wrinkling method. Although essentially similar to our proof in [ME], the current proof is, in our opinion, more transparent and easier to understand. Besides Thurston's theorem we prove here a generalized version of our results from [ME] related to families of foliations.

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