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Stable mappings of C^∞ -manifolds and stable mappings of henselian germs of schemes in any characteristic.

Abstract: Whitney studied embeddings of manifolds into \mathbb{R}^N . A simple initial idea was: take a(ny) map $M \rightarrow \mathbb{R}^N$, and deform it generically. Hopefully one gets an embedding, at least an immersion. This fails totally because of the “stable maps“. They are non-immersions, but are preserved in small deformations. The theory of stable maps was constructed in 50’s-60’s by Thom, Mather and others. The participating groups are infinite-dimensional, and the engine of the theory was vector fields integration. This chained all the results to the real/complex-analytic case. I will discuss the classical case, then report on the new results, extending the theory to the arbitrary field (of any characteristic).