On Nash-Moser-Ekeland Hard Inverse Mapping Theorem

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We present a criterion for local surjectivity of mappings between Fréchet spaces in the spirit of a well known criterion in Banach spaces formulated by M. Fabian and D. Preiss in 1987 [2]. As an application, we prove a hard inverse mapping theorem, of Nash-Moser type, between Fréchet spaces. The technology of our proofs was strongly influenced by a recent paper of I. Ekeland [1]. The speech is based on a forthcoming joint paper by Radek Cibulka and the lecturer.

References

[1] Ivar Ekeland, An inverse function theorem in Fréchet spaces, Ann. Inst. H. Poincaré (2011), Volume 28, pp. 91–105.

[2] Marián Fabian, David Preiss, A generalization of the interior mapping theore of Clarke and Pouciau, Comment. Math. Univ. Carolinae, (1987), Volume 28, pp. 311–324.