Mathematics > Functional Analysis

# An Inverse Function Theorem in Frechet Spaces

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I present an inverse function theorem for differentiable maps between Frechet spaces which contains the classical theorem of Nash and Moser as a particular case. In contrast to the latter, the proof does not rely on the Newton iteration procedure, but on Lebesgue's dominated convergence theorem and Ekeland's variational principle. As a consequence, the assumptions are substantially weakened: the map F to be inverted is not required to be C^2, or even C^1, or even Frechet-differentiable.

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