Jacobians revisited

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I will present joint results with H.-M. Nguyen concerning the study of the Jacobian determinant of maps from $\mathbb{R}^N$ into $\mathbb{R}^N$ (and also $\mathbb{S}^N$ into $\mathbb{S}^N$). Surprisingly, we are able to give a robust definition of a Jacobian determinant for a class of maps which do not admit derivatives (for example a Holder condition suffices). New estimates illuminate classical results of Y. Reshetnyak and J.Ball concerning the behavior of the distributional Jacobian under weak convergence in Sobolev spaces

References

H. Brezis and H.-M. Nguyen; On the distributional Jacobian of maps from $\mathbb{S}^N$ into $\mathbb{S}^N$ in fractional Sobolev and Holder spaces, *Annals of Math.* (to appear).

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