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Characterization of generalized gradient Young measures in $W^{1,1}$ and BV.

Abstract. Generalized Young measures (or DiPerna/Majda measures) are an extension of classical Young measures that are able to quantitatively account for both oscillation and concentration phenomena in merely L^1-bounded sequences of functions or in a sequence of Radon measures (uniformly bounded in the total variation norm). After explaining the basic framework in a functional-analytic spirit, the main result of this work is presented: A characterization of the class of generalized Young measures that can be generated by $W^{1,1}$-gradients or BV-derivatives. This characterization is in terms of Jensen-type inequalities for quasiconvex functions and can be considered a natural generalization of the Kinderlehrer-Pedregal Theorem for classical Young measures. This is joint work with Jan Kristensen.