Remarks on the Theory of the Divergence-Measure Fields

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We review the theory of the (extended) divergence-measure fields providing an up to date account of its basic results established by Chen and Frid (1999, 2002), as well as the more recent important contributions by Silhavý (2008, 2009). We include a discussion on some pairings that are important in connection with the definition of normal trace for divergence-measure fields. We also review its application to the uniqueness of Riemann solutions to the Euler equations in gas dynamics, as given by Chen and Frid (2002). While reviewing the theory, we simplify a number of proofs allowing an almost self-contained exposition.