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Boris S. Mordukhovich (boris@math.wayne.edu), Detroit, MI 48202, and **Wei Ouyang*** (wei@wayne.edu), Detroit, MI 48202. *Higher-order metric subregularity and its applications.*

This paper is devoted to the study of metric subregularity and strong subregularity of any positive order q for set-valued mappings in finite and infinite dimensions. While these notions have been studied and applied earlier for $q = 1$ and—to a much lesser extent—for $q \in (0, 1)$, no results are available for the case $q > 1$. We derive characterizations of these notions for subgradient mappings, develop their sensitivity analysis under small perturbations, and provide applications to the convergence rate of Newton-type methods for solving generalized equations. (Received July 16, 2014)