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Functional Calculus on BMO-type Spaces of Bourgain, Brezis and Mironescu

A nonlinear superposition operator T_g related to a Borel measurable function $g:\ \mathbb{C}\to\mathbb{C}$ is defined via $T_g(f):=g\circ f$ for any complex-valued function f on $\mathbb{R}^n$. In this talk, we investigate the mapping properties of T_g on a new BMO type space recently introduced by Bourgain, Brezis and Mironescu [J. Eur. Math. Soc. (JEMS) 17 (2015), 2083-2101], as well as its VMO and CMO type subspaces. Some sufficient and necessary conditions for the inclusion result and the continuity property of T_g on these spaces are obtained.