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Vanishing mean oscillation

Sarason (1975) characterized the closure of the uniformly continuous functions in $\mathrm{BMO}(\mathbb{R})$ by the uniform vanishing of the mean oscillation (VMO) over intervals, as the size of the intervals shrinks to zero. Variations of VMO exist in the literature under the same and different notations. In joint work with Almut Burchard (Toronto) and Ryan Gibara (Laval), we consider VMO defined using a basis of open sets in $\mathbb{R}^n$ and study the continuity of rearrangements on this space. In joint work with Almaz Butaev (Calgary), looking at the nonhomogenous BMO space (Goldberg's bmo) on a domain $\Omega \subset \mathbb{R}^n$, we formulate conditions determining "vanishing at the boundary" and "vanishing at infinity", and obtain approximation and extension results for functions satisfying these conditions when Ω is an (ϵ, δ) domain.