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Trace and extension theorems for functions of bounded variation

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Abstract. In this paper we show that every L^1-integrable function on $\partial\Omega$ can be obtained as the trace of a function of bounded variation in Ω whenever Ω is a domain with regular boundary $\partial\Omega$ in a doubling metric measure space. In particular, when Ω supports a 1-Poincaré inequality, the trace class of $BV(\Omega)$ is $L^1(\partial\Omega)$. We also construct a bounded linear extension from a Besov class of functions on $\partial\Omega$ to $BV(\Omega)$.

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