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Integrals in the Metric $L^r$

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We introduce the $L^r$-variational integral [7], a variational-type integral [3] which recovers a function from its derivative [1] defined in the space $L^r$, $1 \leq r < \infty$. We show that this integral is equivalent to a Henstock-Kurzweil-type integral, the HK$_r$-integral (2004) [4], which also recovers a function from its $L^r$-derivative. Finally, we show [5] that the $P_r$-integral, which was introduced by L. Gordon in 1967 [2], is strictly contained in the HK$_r$-integral and therefore also in the $L^r$-variational integral. This is joint work with Valentin Skvortsov and Francesco Tulone.

References


