

Distributions of anisotropic order and applications

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We define distributions of anisotropic order, and establish their immediate properties. The central result is the Schwartz kernel theorem for such distributions, which represents continuous operators from $C_c^l(X)$ to $\mathcal{D}'_m(Y)$ by kernels, which are distributions of order l in x , but higher, though still finite order in y .

Our main motivation for introducing these distributions is the fact that the H-distributions, recently introduced generalisation of H-measures (Antonić and Mitrović, 2011) are, in fact, distributions of order 0 in $\mathbf{x} \in \mathbf{R}^d$, and finite order in $\xi \in S^{d-1}$. This allows us to obtain some more precise results on H-distributions, with further applications to partial differential equations.

The talk is based on the work in progress with MARKO ERCEG and MARIN MIŠUR.