ULTRADIFFERENTIABLE CLASSES OF ENTIRE FUNCTIONS

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Abstract: We study classes of ultradifferentiable functions defined in terms of small weight sequences violating standard growth and regularity requirements. First, we show that such classes can be viewed as weighted spaces of entire functions for which the crucial weight is given by the associated weight function of the so-called conjugate weight sequence. Moreover, we generalize results from M. Markin from the so-called small Gevrey-setting to arbitrary convenient families of (small) sequences and show how the corresponding ultradifferentiable function classes can be used to detect boundedness of normal linear operators on Hilbert spaces (associated to an evolution equation problem). Finally, we study the connection between small sequences and the recent notion of dual sequences introduced in the PhD-thesis of Javier Jiménez-Garrido.
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