

Injectivity and surjectivity of the Stieltjes moment mapping in Gelfand-Shilov classes defined by weight sequences with shifted moments

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The condition

$$\exists C_0 > 0, H > 1: \forall p \in \mathbb{N}_0, \log(m_{p+1}/m_p) \leq C_0 H^{p+1}, \quad (m_p := M_{p+1}/M_p)$$

has appeared recently in the study of the surjectivity of the Borel mapping in Carleman-Roumieu ultraholomorphic classes defined in terms of a weight sequence $\mathbf{M} = (M_p)_{p \geq 0}$. It turns out that this condition is the key for properly setting a new Stieltjes moment problem in Gelfand-Shilov classes defined by weight sequences. Unlike the classical situation dealing with sequences satisfying the condition (M2)' of H. Komatsu, the Stieltjes moment sequence of a function in such classes will have its growth controlled by the shifted sequence $\mathbf{M}_{+1} := (M_{p+1})_{p \geq 0}$ instead of by \mathbf{M} itself. We will present results concerning the injectivity and surjectivity of the Stieltjes moment mapping in this new framework.

This is joint work with J. Jiménez-Garrido (Univ. of Cantabria, Spain), I. Miguel-Cantero (Univ. of Valladolid) and G. Schindl (Univ. of Vienna, Austria).
