

# Stability of order and type under perturbation of the spectral measure

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## Abstract

In 2011 A. Borichev and M. Sodin showed that the exponential type of a measure is stable under perturbations consisting of exponentially small redistribution of mass and exponentially small additive summands. This fact can be seen as stability of de Branges chains in the corresponding  $L^2$ -spaces. We investigate stability of de Branges chains in  $L^2$ -spaces under perturbations having the same form, but allow other magnitudes for the error. The admissible size of a perturbation is connected with the maximal growth of functions in the chain. Our main result says that that an alternative takes place when passing to a perturbed measure: either the original de Branges chain remains dense, or its closure must contain functions with faster growth. We propose a notion of order of a measure and show stability and monotonicity properties of this notion. The cases of exponential type (order 1) and very slow growth (logarithmic order at most 2) turn out to be particular. The talk is based on a joint work with Harald Woracek (Technische Universität Wien).