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Recent results on operator theory in weighted Bergman spaces

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Resumen (Abstract):

I review recent results in the operator theory in Bergman spaces. In cooperation with J. Bonet and W. Lusky we found characterizations of the boundedness of Toeplitz operators and characterizations of the solid hulls and cores in the case of large Bergman spaces on the unit disc \mathbf{D} endowed with weighted sup-norms.

I also consider Bergman kernels and Toeplitz operators on Bergman spaces on periodic planar domains $\Omega \subset \mathbf{C}$ using novel Floquet-transform techniques. These considerations lead to new examples on Toeplitz operators on \mathbf{D} with discontinuous essential spectra and to a generalization of the well-known spectral band formula from elliptic boundary problems into the setting of analytic function spaces. The latter result may be extended to large classes of singular integral operators on L^2 -spaces on periodic domains (work in progress).