Operator Theory and Analytic Function Spaces

Radial average operator and Bergman projection

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Many problems concerning derivatives of inner functions in weighted Bergman spaces are related to the question of when one may apply the Schwarz-Pick lemma inside the Bergman norm integral without any essential loss of information. The radial doubling weights having this property are those for which a certain radial average operator is bounded from the weighted Bergman space to the corresponding Lebesgue space. The boundedness of this average operator can be described by a kind of Bekolle-Bonami- or Muckenhoupt-type condition, and is in turn equivalent to the boundedness of the Bergman projection in an appropriate setting. This average operator works as a model for the study of the boundedness of the Bergman projection, induced by a radial doubling weight, acting from one Lebesgue space to another, both being induced by radial regular weights. This talk is about the above-mentioned results.