

# Norms of inclusions between some classical function spaces

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It is well known that an arbitrary analytic (conformally invariant) Besov space  $B^p$  is contained in the Bloch space  $\mathcal{B}$  of all analytic functions in the disk with bounded invariant derivative. Also, it is well known that the Bloch space is contained in every Bergman space  $A^p$  of  $p$ -integrable analytic functions with respect to Lebesgue area measure, where  $1 \leq p < \infty$ . Moreover, all these inclusions are compact operators.

In this joint work with D. Vukotić, we compute the exact values of the norm of the inclusion operator from  $B^p$ ,  $1 < p < \infty$ , into the Bloch space. The norm of the inclusion of  $\mathcal{B}$  into  $A^p$  is a more delicate question: we show that it is exactly one when  $1 \leq p \leq p_0$  for some  $p_0 > 2$  but it blows up as  $p \rightarrow \infty$ . We address the questions of precise asymptotic order of the norm for large values of  $p$  and the accurate value of  $p_0$ .

**Keywords:** Bergman spaces, Bloch space, Besov spaces, extremal problems, norm of inclusions.