Nicola Arcozzi

Weighted Hardy inequalities on the bitree.

Abstract. In 1974 Lennart Carleson showed that the Carleson measures for the Hardy space on the bidisc can not be characterized by "Carleson's condition" and soon after Alice Chang gave them a characterization . The analogous problem for the Dirichlet space on the bi-disc is equivalent to the boundedness of a bi-parameter Hardy operator on suitable weighted spaces. The weights for which boundedness holds can be characterized by a capacitary condition, as in Maz'ya's characterization of trace inequalities and Stegenga's characterization of Carleson's measure for the Dirichlet space. The proof, however, is different, since the underlying potential theory does not have a maxim principle.

Work in collaboration with Pavel Mozolyako, Karl-Mikael Perfekt, Giulia Sarfatti.