Workshop dedicated to the memory of Professor Gabriela Kohr
(3rd edition)
Geometric Function Theory in Several Complex Variables and Complex Banach Spaces

Cluj-Napoca, Romania 1 – 3 December 2023

A survey on the boundary behavior of the double layer potential in Schauder spaces in the frame of an abstract approach

Massimo Lanza de Cristoforis
University of Padova, Italy

Abstract

We provide a summary of the continuity properties of the boundary integral operator corresponding to the double layer potential associated to the fundamental solution of a *nonhomogeneous* second order elliptic differential operator with constant coefficients in Hölder and Schauder spaces on the boundary of a bounded open subset of $\mathbb{R}^n$. The purpose is two-fold. On one hand we try present in a single paper all the known continuity results on the topic with the best known exponents in a Hölder and Schauder space setting and on the other hand we show that many of the properties we present can be deduced by applying results that hold in an abstract setting of metric spaces with a measure that satisfies certain growth conditions that include non-doubling measures as in a series of papers by García-Cuerva and Gatto in the frame of Hölder spaces and later by the author.