

PARTIAL DERIVATIVES, SINGULAR INTEGRALS AND SOBOLEV
SPACES IN DYADIC SETTINGS

HUGO AIMAR, JUAN COMESATTI, IVANA GÓMEZ, AND LUIS NOWAK

ABSTRACT. In this note we show that the general theory of vector valued singular integral operators of Calderón-Zygmund defined on general metric measure spaces, can be applied to obtain Sobolev type regularity properties for solutions of the dyadic fractional Laplacian. In doing so, we define partial derivatives in terms of Haar multipliers and dyadic homogeneous singular integral operators.