

# On the application of a condition of strong upper Ahlfors regularity to potential theory

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Gatto [4] has extended to the context of measure metric spaces several results of the theory of integral operators by assuming that the underlying measure satisfies a condition of upper Ahlfors regularity, *i.e.*, that the measure of a ball can be controlled from above by a power of the radius (a condition that includes non-doubling measures). See also García-Cuerva and Gatto [1], [2], Gatto [3] for related results.

Here we assume a stronger version of the upper Ahlfors regularity condition that still includes non-doubling measures and show a corresponding continuity statement for singular integral operators. As an application, we prove a continuity property of the integral operator that is associated to the double layer potential in Hölder spaces.

## References

- [1] J. García-Cuerva, A.E. Gatto, *Boundedness properties of fractional integral operators associated to non-doubling measures*. *Studia Math.* 162(3) (2004), 245–261.
- [2] J. García-Cuerva, A.E. Gatto, *Lipschitz spaces and Calderón-Zygmund operators associated to non-doubling measures*. *Publ. Mat.* 49 (2005), no. 2, 285–296.
- [3] A.E. Gatto, *On fractional calculus associated to doubling and non-doubling measures*. *Harmonic analysis*, 15–37, *Contemp. Math.*, 411, Amer. Math. Soc., Providence, RI, 2006.
- [4] A.E. Gatto, *Boundedness on inhomogeneous Lipschitz spaces of fractional integrals singular integrals and hypersingular integrals associated to non-doubling measures*. *Collect. Math.* 60, 1 (2009), 101–114.