

Wednesday, April 18, 17:00 – 18:00

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## ON THE CONTINUITY FOR MAXIMAL OPERATORS

In this talk we will discuss some questions related to the continuity of maximal operators on Sobolev spaces  $W^{1,p}$  and BV spaces, complementing some well-known boundedness results. We will briefly discuss the case  $p > 1$ , then we will focus our attention in the case  $p = 1$ .

Letting  $Mf$  be the one-dimensional uncentered Hardy-Littlewood maximal operator, we prove that the map  $f \mapsto (Mf)'$  is continuous from  $W^{1,1}(\mathbb{R})$  to  $L^1(\mathbb{R})$ .

For the one-dimensional uncentered fractional Hardy-Littlewood maximal operator, we prove a similar result on  $W^{1,1}(\mathbb{R})$ . Moreover we prove by means of counterexamples that the corresponding continuity statements do not hold on BV-spaces, for both the centered and uncentered versions.