SEMINÁRIO DE EQUAÇÕES DIFERENCIAIS

Subharmonicity and the regularity of non-tangential maximal operators

Emanuel Carneiro

Instituto de Matemática Pura e Aplicada (IMPA)

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Resumo: In this talk I will briefly survey the regularity theory for maximal operators in Sobolev and BV spaces. It has been conjectured for more than a decade that the classical centered one-dimensional Hardy-Littlewood maximal operator should not increase the variation of a function. The answer for this particular question is still unknown, but in this talk I intend to show to proof of the analogous conjecture for other classical maximal operators of convolution type with smooth kernels, namely the heat flow maximal function and the Poisson maximal function. The proofs make use of a nice interplay between the analysis of maximal functions and the structure of the underlying partial differential equations.