

COLÓQUIOS 2015  
DEPARTAMENTO DE MATEMÁTICA

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FALARÁ SOBRE

**Singularities of solutions to the equation  $\operatorname{div} v = f$   
in (weighted)  $L^p$  spaces**

It follows from work by R. Duran, M.-A. Muschietti, E. Russ and P. Tchamitchian (2010) that it is in general not possible, if  $f \in L^\infty(\Omega)$  is defined on a domain  $\Omega$ , to find a solution  $v \in L^\infty(\Omega)$  to the equation  $\operatorname{div} v = f$ , satisfying  $\|v\|_\infty \leq C\|f\|_\infty$  where  $C$  is a constant independent from  $f$ , but that there exists a necessary and sufficient (geometrical) condition on  $\Omega$  allowing to solve the above problem in  $L^\infty(1/w)$ , where  $w$  is an integrable weight depending on the geometry of the problem. Motivated by this work, we shall study the set of singularities of vector fields in  $L^\infty(1/w)$  satisfying the equation  $v = 0$ , and if time permits we shall discuss some  $L^p$ -versions of this problem. This work is a joint work with E. Russ et H. Tuominen.

Quarta-feira, 26 de agosto Departamento de Matemática  
16 horas Auditório

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