

# REGULARITY THEORY FOR MAXIMAL OPERATORS - AN OVERVIEW

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This talk will be a brief survey of past and recent results on the regularity of maximal operators acting on Sobolev and BV functions. The problems in this area can be posed either in a continuous or in a discrete setting - each format bearing their own challenges. We will present some results for the classical Hardy-Littlewood maximal operator, for operators of convolution type (associated to elliptic and parabolic PDE's) and also for fractional maximal operators - and discuss at length some of the related open problems. I expect the talk will be fully accessible to a broad audience of analysts.