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## DECREASING REARRANGEMENT ON AVERAGE OPERATORS

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ABSTRACT. Let  $\{T_\theta\}_\theta$  be a family of operators indexed in a probability measure space  $(\Omega, \mathcal{A}, P)$  such that the boundedness

$$T_\theta : L^1(u) \longrightarrow L^{1,\infty}(u), \quad \forall u \in A_1,$$

holds with constant less than or equal to  $\varphi(\|u\|_{A_1})$ , with  $\varphi : [1, \infty) \rightarrow (0, \infty)$  being an *admissible* function and where  $A_1$  is the class of Muckenhoupt weights. The aim of this talk is to address the following question: what can we say about the decreasing rearrangement of the average operator

$$T_A f(x) = \int_{\Omega} T_\theta f(x) dP(\theta), \quad x \in \mathbb{R}^n,$$

whenever is well defined?

This is a joint work with Elona Agora, Jorge Antezana and María J. Carro and it was done during the fulfillment of my doctoral thesis.

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