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**Jonas Azzam\***, Universitat Autònoma de Barcelona, Departament de Matemàtiques, Edifici C, Faculta de Ciències, Bellaterra, Spain, and **Xavier Tolsa**. *A characterization of rectifiable measures in Euclidean space.*

We show that a Radon measure  $\mu$  in  $R^d$  which is absolutely continuous with respect to  $n$ -dimensional Hausdorff measure  $H^n$  is  $n$ -rectifiable if the so called Jones' square function is finite  $\mu$ -almost everywhere. The converse of this result is proven in a companion paper by Xavier Tolsa, and hence these two results give a classification of all  $n$ -rectifiable measures which are absolutely continuous with respect to  $H^n$ . (Received September 07, 2015)