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**Ramón J Aliaga, Chris Gartland\*** (cgartland@tamu.edu), **Colin Petitjean** and **Antonín Procházka**. *Purely 1-Unrectifiable Metric Spaces and the Radon-Nikodym Property*. Preliminary report.

There is a deep theory of differentiation of Lipschitz maps from a certain class of metric measure spaces into Banach spaces having the Radon-Nikodym property (RNP spaces). Metric measure spaces belonging to this class are referred to as RNP LD spaces. A striking corollary of the theory is that many RNP LD spaces, such as the Heisenberg group or Laakso space, fail to biLipschitz embed into any RNP space. An open question is, does some sort of differentiation theory actually characterize metric spaces non-biLipschitz embeddable into RNP spaces? One common feature of RNP LD spaces is that they possess a rich family of curve fragments, meaning biLipschitz copies of positive measure subsets of the real line. A strong negation of this property is pure 1-unrectifiability - the property of containing no curve fragments at all. In this talk, we will discuss a recent result that every complete, purely 1-unrectifiable metric space isometrically embeds into a Banach space with the RNP, providing evidence towards a positive answer to the previous question. The result is an application of a characterization of compact, purely 1-unrectifiable metric spaces in terms of their locally flat Lipschitz functions. Based on joint work with Ramón J. Aliaga, Colin Petitjean, and Antonín Procházka. (Received January 14, 2021)