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Alexandru Tamasan* (tamasan@math.ucf.edu), Oviedo, FL 32816, and **Kamran Sadiq** (kamran.sadiq@oeaw.ac.at), Linz, Austria. *On the range characterization of the Radon transform in two dimensions*. Preliminary report.

Range characterization of the Radon transform has been known since the early 1960s in the works of Gelfand-Graev, Ludwig, and Helgason (the so called Cavalieri conditions). For Riemannian geometries, the range characterization has been provided in terms of the scattering relations by Pestov-Uhlmann in 2004. The equivalence between the two characterizations was recently shown by Monard 2018. A separate characterization has been given by the authors in 2014 in terms of a Hilbert transform corresponding to the A -analytic maps in the sense of Bukhgeim (introduced in 1995). In this talk I will present some recent results establishing the equivalence between the Hilbert transform characterization and the Cavalieri conditions. (Received September 16, 2019)