Izabella Laba and Malabika Pramanik* (malabika@math.ubc.ca), 1984 Mathematics Road, Department of Mathematics, University of British Columbia, Vancouver, BC V6T 1Z2, Canada.

Multi-linear integrals associated to sparse subsets of $\mathbb{R}$.

We discuss two results on sparse subsets of $\mathbb{R}$. The first concerns existence of three term progressions and the second boundedness of maximal operators and differentiation theorems. The common theme is the estimation of certain multi-linear integrals which play a critical role in both problems. This is joint work with Izabella Laba. (Received September 19, 2009)