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Arnaud Durand* (arnaud.durand@math.u-psud.fr) and **Stephane Jaffard**. *Multifractal analysis of Lévy fields*.

We are interested in the study of the pointwise regularity of the Lévy fields introduced by T. Mori, which are a very natural extension of Lévy processes to the multivariate setting. We determine their spectrum of singularities, and we show that their Hölder singularity sets satisfy a large intersection property in the sense of K. Falconer. As shown by Mori, these random fields may be written as the sum of a linear drift, a Gaussian component and a jump component, in a way that is similar to the Lévy-Itô decomposition of Lévy processes. While the study of the Gaussian part makes use of standard tools such as entropy bounds, the examination of the jump part calls upon a precise knowledge of the location of its singularities and a description of the size and large intersection properties of the fractal set formed by the points that are approximated at a certain rate by random hyperplanes distributed in a Poissonian way. (Received September 19, 2011)