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The Clark Formula of Generalized Lévy Functionals. Preliminary report.

In this talk, we formulate the Clark formula for generalized Lévy functionals via white noise analysis. It is shown that the S-transform SF of a generalized Lévy functionals F satisfies the following formula

$$SF(\eta) = \mathbb{E}[F] + \int_0^1 \frac{d}{dt} SF(P_t(\eta))dt,$$

where, for $t \in \mathbb{R}$ and $h \in L_c^2(\mathbb{R}^2, \lambda)$, $P_t(h) = h \cdot 1_{(-\infty,t]\times\mathbb{R}}$ and $\mathbb{E}[\cdot]$ denote the generalized expectation. Then the Clark formula is obtain immediately by taking the inverse S-transform. (Received September 13, 2011)