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“Continuity of infinitely divisible processes via Poisson processes”

ABSTRACT: Sufficient conditions for boundedness and continuity are obtained for processes of the form $X(t) = \int_S f(t, s) N_f(t, ds)$, $t \in T$, where N_f is a compensated Poisson random measure on S , f a deterministic kernel, and T a compact metric space. Bounds for the moments of suprema and for the modulus of continuity of such processes are also derived. Examples of processes we consider include stochastic integrals with respect to Lévy processes or random sheets, fractional infinitely divisible processes, harmonizable processes, and moving averages. This talk will be based on a joint work with Michael B. Marcus.