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**Matthew Lorig** and **Stefano Pagliarani\*** ([stefanop@math.unipd.it](mailto:stefanop@math.unipd.it)), Via Trieste, 63, 35121 Padova, Italy, and **Andrea Pascucci**. *Analytical approximations in local Lévy models with default.*

We consider a defaultable asset whose risk-neutral pricing dynamics are described by an exponential Lévy-type martingale subject to default. This class of models allows for local volatility, local default intensity, and a locally dependent Lévy measure. Generalizing and extending the novel adjoint expansion technique of Riga, Pagliarani, Pascucci (2013), we derive a family of asymptotic expansions for the transition density of the underlying as well as for European-style option prices and defaultable bond prices. For the density expansion, we also provide error bounds for the truncated asymptotic series. Additionally, for pure diffusion processes, we derive an asymptotic expansion for the implied volatility induced by European calls/puts. Our method is numerically efficient; approximate transition densities and European option prices are computed via Fourier transforms; approximate bond prices are computed as finite series. Additionally, for models with Gaussian-type jumps, approximate option prices can be computed in closed form and theoretical asymptotic estimates for the error are available. (Received July 29, 2013)