1020-60-5   **Vladimir Vinogradov*** (`vlavin@math.ohiou.edu`), Department of Mathematics, 321 Morton Hall, Ohio University, Athens, OH 45701. *On weak convergence to Poisson-exponential law.*

We construct a univariate exponential dispersion model comprised of discrete infinitely divisible distributions. This model emerges in the theory of branching processes. We obtain a representation for the Lévy measure of relevant distributions and characterize their laws as Poisson mixtures and/or compound Poisson distributions. The regularity of the unit variance function of this model is employed for the derivation of approximations by the Poisson-exponential model. We emphasize the role of the latter class. We construct local approximations relating them to properties of special functions and branching diffusions. (Received April 01, 2006)