1011-33-123 **Moritz Simon*** (moritz.simon@gsf.de), Institute of Biomathematics and Biometry, GSF — National Research Center, Ingolstädter Landstraße 1, D–85764 Neuherberg, Germany. *Asymptotics of some q-exponentials — are they always of order zero?* Preliminary report.

We discuss the asymptotics, i. e. the order and the type of various kinds of entire q-exponential functions and compare our results to the continuum situation $q = 1$. Among others we shall especially consider the q-delayed exponentials $\psi_N : \mathbb{C} \to \mathbb{C}$ generated by

$$\frac{d}{dz}\psi_N(z) = \lambda N z^{N-1}\psi_N(qz) \quad \forall\, z \in \mathbb{C}, \quad \psi_N(0) = 1,$$

where $q \in (0, 1)$ and $N \in \mathbb{N}$. They generalize the continuum exponentials $e^{\lambda z^N}$, which are of order N and type $|\lambda|$. However, the functions ψ_N — as well as the other q-exponentials we take into account — turn out to be of order zero for any positive integer N. This seems to be a rather general property in the "q-world". (Received August 22, 2005)