1014-60-838 **Jaap L. Geluk*** (jgeluk@pi.ac.ae), The Petroleum Institute, P.O. Box 2533, Abu Dhabi, United Arab Emirates, and **Kai W. Ng** (kaing@hku.hk), Dept. of Statistics and Actuarial Science, University of Hong Kong, Pokfulam Road, Hong Kong. *Tail behavior of negatively associated heavy tailed sums.* Preliminary report.

Consider a sequence $\{X_k, k \geq 1\}$ of i.i.d. random variables with subexponential d.f. F ($F \in \mathcal{S}$), that is

$$P\{X_1 + X_2 > x\} \sim 2P\{X_1 > x\} \text{ as } x \to \infty.$$

Using the convention $X_0 = 0$, we write

$$X_{(n)} = \max_{0 \leq k \leq n} X_k, \quad S_n = \sum_{k=0}^{n} X_k, \quad S_{(n)} = \max_{0 \leq k \leq n} S_k.$$

Using the Pollaczek-Spitzer identity, Sgibnev (1996) studied the asymptotic behavior of the tail probability of $S_{(n)}$ in the case of i.i.d. summands. In particular, when $F \in \mathcal{S}$, he proved that $P\left(S_{(n)} > x\right) \sim n\overline{F}(x)$, where $\overline{F}(x) = P\{X > x\}$.

In the talk we drop the assumption of identically distributed random variables with $F \in \mathcal{S}$ and assume instead that X_k , $k \geq 1$ has a long-tailed distribution function F_k ($F_k \in \mathcal{L}$), that is $P\{X_k > x + a\} \sim P\{X_k > x\}$ as $x \to \infty$. In this more general setup we explore under which conditions the asymptotic equalities

$$P\{S_{(n)} > x\} \sim P\{X_{(n)} > x\} \sim P\{S_n > x\} \sim \sum_{k=1}^{n} \overline{F}_k(x).$$

are valid.

An extension to negatively associated subexponential random variables will be discussed as well. This generalizes a result of Wang and Tang (2004). (Received September 25, 2005)