

MEGHÍVÓ

a Szegedi Tudományegyetem Bolyai Intézete és a Bolyai János
Matematikai Társulat Csongrád Megyei Tagozata által szervezett
SZEMINÁRIUM

következő rendezvényére, amelyen

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Feller Classes and the Asymptotic Behavior of Self-Normalized Sums and Processes

címmel tart előadást

Az előadás időpontja: 2012. május 25. 10.00 óra

**Az előadás helye: SZTE Bolyai Intézet (Szeged, Aradi
vértanúk tere 1.) II. em. Fejér terem**

Az előadás kivonata: Let $\{\xi_i\}_{i \geq 1}$ be i. i. d. ξ . For each $n \geq 1$, let $S_n = \sum_{i=1}^n \xi_i$. We shall say that ξ is in the Feller class if there exist norming and centering constants $B(n) > 0$ and $A(n)$ such that every subsequence of $\{n_k\}$ of $\{n\}$ contains a further subsequence $n_{k'} \rightarrow \infty$ with

$$\frac{S_{n_{k'}} - A(n_{k'})}{B(n_{k'})} \xrightarrow{D} W,$$

where W is a finite nondegenerate rv depending on the subsequence $n_{k'}$. If the centering function $A(n)$ can be chosen to be identically equal to zero, we shall say that ξ is in the centered Feller class. Whether ξ is in the centered Feller class or not determines the asymptotic behavior of self-normalized sums, such as

$$\frac{\sum_{i=1}^n \xi_i}{\sqrt{\sum_{i=1}^n \xi_i^2}}.$$

An analog notion for a Levy process X_t with canonical triplet (γ, σ^2, Π) to be in the Feller class as $t \downarrow 0$ or $t \rightarrow \infty$ has been recently developed by Maller and Mason (2009, 2010). It controls various aspects of the large sample behavior, as $t \downarrow 0$ or $t \rightarrow \infty$, of self-normalized versions of X_t , such as

$$\frac{X_t}{\sqrt{t\sigma^2 + \sum_{0 \leq s \leq t} (\Delta X_s)^2}}.$$

We shall describe these Feller classes and their roles in the study of self-normalized sums and processes, and of related randomly weighted sum processes. Much of this talk will be based on recent work with Péter Kevei and Ross Maller.

References

- Kevei, P. and Mason, D.M. The asymptotic distribution of randomly weighted sums and self-normalized sums. Submitted for publication.
- Maller, R. and Mason, D.M. (2009). Stochastic compactness of Lévy process. Proceedings of High Dimensional Probability V, Luminy, France, 2008, (C. Houdré, V. Kolthchinskii, M. Peligrad and D. Mason, eds.) *I.M.S. Collections, High Dimensional Probability V: The Luminy Volume*, Vol. 5 pp. 239-257.
- Maller, R. and Mason, D.M. (2010). Small-time compactness and convergence behavior of deterministically and self-normalized Lévy processes. *Trans. Amer. Math. Soc.* **362** 2205-2248.

Minden érdeklődőt szeretettel vár az előadó, és a szeminárium szervezői.