

## Editor's Award

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## EDITOR'S AWARD

We have the pleasure to announce that the honorary "Editor's Award"<sup>1</sup> for the year 2014 has been conferred on the paper

*Functional of spatial point processes having a density with respect to the Poisson process* by Viktor Beneš and Markéta Zikmundová. *Kybernetika* 50 (2014), 6, 896 – 913.

The awarded paper is written by the recognized expert in probability theory and point processes, namely Viktor Beneš, together with his successful former PhD. student Markéta Zikmundová. It makes a nontrivial contribution to the stochastic geometry of spatial point processes. While previous development included results on moments and central limit theorems for multivariate Poisson functionals, the paper by V. Beneš and M. Zikmundová deals with non-Poisson point processes that have densities w.r.t. a Poisson process. Functionals of these processes, in particular the U-statistics, are thoroughly investigated. General formulas for their moments are derived in terms of the Papangelou density, using kernels from the Wiener–Itô chaos expansion. More explicit results are presented for the U-statistics of parametric models, and are applied to the processes of interacting segments and plates. Here, first two moments are derived and a version of CLT for the Poisson case proved.

The editors appreciated the paper as a highly mathematical contribution that perfectly represents one of *Kybernetika* journals crucial topics. The paper provides new results that solve some open problems. By way of illustration, let us quote one of the referee comments:

"An important tool for the proofs of the general results is the Wiener–Itô chaos expansion for Poisson functionals. Although it is a promising and interesting approach to apply this technique to investigate functionals of point processes that have a density with respect to a Poisson process, to the best of my knowledge this is the first paper where this has been done."

And the second referee:

"A novelty of the paper is that it applies Wiener–Itô chaos expansion for obtaining moment formulae in the context of finite point processes absolutely continuous with respect to the distribution of the Poisson point process."

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<sup>1</sup>See [www.kybernetika.cz/award.html](http://www.kybernetika.cz/award.html) for more information about the competition.

An interesting application for stochastic geometry models is presented. The paper is interesting and well organized and written. The motivation of the paper is given and is clear.”

Let us briefly introduce here the **authors** of the awarded paper.

**Viktor Beneš** graduated at Charles University in Prague, Faculty of Mathematics and Physics, Czech Republic in 1978, and received there Ph.D. in 1986. He started his research career at the National Institute for Machine Design in Běchovice. From 1990 he was employed at the Czech Technical University, Faculty of Machine Engineering, Department of Mathematics. Since 1998 he is a professor at the Department of Probability and Mathematical Statistics, Faculty of Mathematics and Physics, Charles University. In 2004 he published a monograph "Stochastic Geometry: Selected Topics" together with Jan Rataj. He is an author of more than 70 papers in international journals. His research interests are probability theory and mathematical statistics, stochastic geometry, spatial statistics and stereology, including applications in materials research and biology.

**Markéta Zikmundová** was born in Prague in 1983. She graduated at Charles University in Prague, Faculty of Mathematics and Physics, Czech Republic in 2008. Then she continued in doctoral studies at the Department of Probability and Mathematical Statistics. She received her Ph.D. degree in 2014. She is employed as a lecturer at the Department of Mathematics, Faculty of Chemical Engineering, Institute of Chemical Technology in Prague. She is the author of three papers in international journals and a co-author of a chapter in Lecture Notes in Mathematics 2120, Springer. Her research interests are probability theory and mathematical statistics, stochastic geometry, spatial statistics and stochastic simulation.

Congratulations the authors!

*Editorial Board  
Prague, March 2, 2015*