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Advancement of Nikolay M. Yanev to the Rank of Doctor Honoris Causa of the University of Extremadura, Spain

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The ceremony that awarded Professor Nikolay M. Yanev with a Doctor Honoris Causa granted by the University of Extremadura took place in Badajoz on April 4, 2019. It was my greatest privilege to serve as Dr. Yanev's Godfather in this solemn recognition and to receive the opportunity to summarize his exceptional academic career, relationship and involvement with the University of Extremadura, and human qualities.

Academic and professional trajectory

- Nikolay M. Yanev was born on November 30, 1943 in Burgas, a city located in Eastern Bulgaria. He spent his childhood in the town of Pomorie (situated about 20 km north of Burgas by the Black Sea) where he graduated from high school.

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- He studied Mathematics at St. Kliment Ohridski University in Sofia, completing his studies with a Master of Science degree.

- He next pursued a PhD at Moscow State University in Russia, where he acquired a solid mathematical foundations in the research group led by Professor Andrey N. Kolmogorov (the Father of the Modern Theory of Probability). He worked under the scientific supervision of Professor Boris A. Sevastyanov, and his PhD admission committee was led by Professor Kolmogorov.

- He then joined the Probability and Statistics Department at the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences, where he received a Doctorate of Science degree. While a member of this prestigious scientific Institution, Professor Yanev enjoyed a productive professional life, first as a researcher, then as an associate professor and full professor. He was named a Professor Emeritus of the institute in 2015, were he continues to be extremely active.

- His research in the field of Mathematics has been focused, very fundamentally, on the Theory of Probability and Mathematical Statistics. He has made important contributions to the field of Stochastic Processes, especially to the Theory of Branching Processes and Renewal Theory, where he is considered one of the most prominent expert in the world. Some of his contributions are concerned with characterizing the theoretical properties of mathematical models that describe the temporal evolution of dynamic systems. While of great theoretical interest, these mathematical models also find numerous applications in various fields (biology, demography, population dynamics, epidemiology, genetics, physics, chemistry, economics and computer science among others). Professor Yanev is the author of several books on this interesting class of mathematical models and he has published more than 150 scientific articles in international journals with important impact indexes. He has been an invited lecturer in very important international conferences.

- He developed an intense teaching and research activity at several prestigious American and European universities as well as institutes and research centers across the world. He has prepared reports, lectures

and specialized courses on various subjects in the field of Mathematics.

- He led the organizing and scientific committees for multiple international conferences and workshops that left major scientific footprints. One of them was the First World Congress on Branching Processes, which took place in the Bulgarian city of Varna in 1993.

- He held several leading positions throughout his career. Just to highlight a few, he served as President of the Bulgarian Statistical Society, the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences, and the Department of Probability and Statistics of the Institute of Mathematics and Informatics. He is an elected member of the International Statistical Institute since 1993.

- Professor Yanev is the scientific "father" of an important group of mathematicians whom he introduced and trained to research, and directed their doctoral theses. Several of his scientific disciples have developed successful careers, with some of them currently holding academic positions as professors at prestigious universities in Bulgaria and the United States.

Relationship and involvement with the University of Extremadura

- Under the "Order of the Ministry of Education, Science and Technology of the Junta de Extremadura of March 12, 2002", which called for aid for the temporary incorporation of scientists, humanists and national or foreign technologists to Extremadura research teams, and invited by the research group on Branching Processes and Applications of the University of Extremadura, the funds necessary for Professor Yanev to realize a very fruitful six-month stay at the Faculty of Sciences of the University of Extremadura was awarded.

- Since then, his relationships with the University of Extremadura (which I know has a great affection) has been very productive, participating in all academic and scientific activities for which he was invited. Among them, I would like to mention that he has participated very actively, forming part of the Scientific Committee, in the organization of all four editions of the International Workshop on Branching

Processes and their Applications. This workshop, which recurs every three years, is organized by our research group in the Faculty of Sciences of the University of Extremadura. He presided over the courts of several doctoral theses that have been defended at the University of Extremadura, making important scientific contributions for all of them. He helped trained several members of our university during research stays at the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences. He fostered new research projects between members of his and our mathematical groups. Importantly, researchers from both groups have been collaborating on various research projects for several years now. As a direct consequence of these collaborations, several joint articles have already been published.

Human values

I also consider it important to highlight some of Professor Yanev's human qualities.

- He is a very passionate colleague and sportsman, a music lover and aficionado, and he possesses a great sense of humor. He has an outstanding capacity for work, he is very generous and easy going. Two of his greatest qualities include wisdom and humility.

- It is also important to mention here the person who made a decisive contribution to his personality: his wife, Julia - a woman of great intelligence, and a recognized researcher in the field of Cellular and Molecular Biology.

- Professor Yanev lived much of his live under an authoritarian regime, lacking the freedom to leave his country for several years. This personal experience has instilled freedom, tolerance, and respect for human rights as some of his core values.

Some models and applications in Cell Biology

Finally, I would like to point out, especially for the Journal of Biomath Communications that asides from his pure theoretical contributions, Dr. Yanev wrote about 25 papers on applications of mathematical models to Cell Biology. Most of these publications are focused on novel ideas for

branching stochastic processes in connection with cell proliferation modeling. These new mathematical results were applied to specific areas of Cell Biology, including:

1. Characterization of the temporal organization of the cell cycle.
2. Distributions of discrete and continuous labels.
3. Age and residual lifetime distributions.
4. Models of leukemia cell kinetics.
5. Age-dependent branching populations with randomly chosen paths of evolution.
6. Multitype branching populations with a large number of ancestors and asymptotic likelihood estimation of the basic mitotic cycle parameters.
7. Branching processes with immigration as models of two-type cell populations in vivo.
8. Sevastyanov branching processes with non-homogeneous immigration introduced by Poisson random measures as models of the generation of terminally differentiated oligodendrocytes (cells of the central nervous system) from their stem or progenitor cells.

Note that the first seven topics are presented in some of the publications listed in the references. The last topic is presented in the review paper given below.

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