

## **In Memoriam: Igor V. Evstigneev**

Igor V. Evstigneev, (<http://www.evstigneev.net/>) a professor at the Department of Economics at the University of Manchester and distinguished researcher in the fields of Mathematical Economics and Mathematical Finance, passed away unexpectedly on November 17, 2025.

Igor was a student of E.B. Dynkin, earned his MSc in Mathematics from Moscow State University in 1971, his PhD in Mathematical Methods in Economics in 1974, and a Dr. Sci. in Probability and Statistics in 1988. He had a long tenure as a Research Scientist at the Economics and Mathematics Institute of the Academy of Sciences of Russia, and held long-term visiting positions, including a Research Professorship at the University of Bonn. Igor joined the University of Manchester in early 2001 and remained there until his sudden death. He was elected to the Moscow Mathematical Society in 1989 and a Founding Fellow of the Society for the Advancement of Economic Theory in 2011.

Igor's academic career was marked by a commitment to bridging mathematics, economic theory and quantitative finance. His early research was devoted to stochastic programming and then expanded to economic dynamics, particularly the von Neumann-Gale model. This research culminated in the 1979 book *Stochastic Models of Control and Economic Dynamics* (with V.I. Arkin; English edition was published in 1987). His work on Markov fields and variational problems was published in 1994 *Memoirs of the American Mathematical Society* volume *Markov Fields over Countable Partially Ordered Sets: Extrema and Splitting* (with P.E. Greenwood).

In the last 20 years, the University of Manchester turned out to be a productive environment for Igor and his main project was devoted to the development of a new interdisciplinary field, 'Mathematical Behavioural Finance', which deals with mathematical models of financial markets based on behavioural principles. Their particular emphasis is on evolutionary aspects: growth, domination or just survival, especially in crisis environments. As Igor liked to stress in his presentations, these models go far beyond the conventional paradigm of fully rational utility maximization, and reflect a variety of plausible patterns of market behaviour. This research also uses basic insights from game theory, another key area where Igor has made several contributions.

A central thread running through Igor's research is the theory of von Neumann--Gale dynamical systems. His early work was devoted to extending these classical models of economic dynamics to stochastic environments. Beginning in the 2000s, he discovered

that the conceptual framework of von Neumann-Gale systems provided powerful tools for the analysis of financial markets. This led to far-reaching generalisations of the fundamental results of arbitrage theory and the theory of optimal growth strategies, now viewed through the lens of stochastic dynamical systems.

Many will remember Igor as the lead-organiser of the stimulating Trimester Program "Stochastic Dynamics in Economics and Finance" at the Hausdorff Research Institute for Mathematics at the University of Bonn, May-August 2013 ([https://www.mathematics.uni-bonn.de/him/programs/past/tp\\_2013\\_05](https://www.mathematics.uni-bonn.de/him/programs/past/tp_2013_05) [mathematics.uni-bonn.de]), a source of inspiration for many young scholars.

At the University of Manchester's School of Social Sciences, Igor was widely regarded as a scholar of exceptional mathematical rigor, yet he combined this with genuine warmth, attentiveness, and care for his students. He supported their academic development with great dedication and took sincere interest in their personal aspirations. His intellectual integrity and humanity will be remembered with respect and gratitude.

With Igor's death, we lose a brilliant and dedicated mathematical economist whose work was both innovative and rigorous, leaving a profound and lasting impact on our field. He devoted extraordinary time and care to supervising and supporting generations of PhD students and undertook much significant service to our profession. We also mourn the loss of an inspiring and generous co-author as well as a steadfast friend. We will cherish our memories of Igor and honor his legacy by continuing the joint research program based on his outstanding contributions and his enduring guidance.

Rabah Amir      Thorsten Hens      Klaus Schenk-Hoppe      Mikhail Zhitlukhin