RESUME SUMMARY OF

EVANGELOS MELAS

Studies

I received my bachelor's degree in Physics from the NKUA, my MSc in Theoretical Physics at Imperial College, University of London, and my PhD in Mathematical Physics from the Mathematics Department at QMW, University of London, supported by Scholarships from National Scholarships Foundation and from British Council.

Career

For 19 years I have been a Lecturer in Mathematics in various Universities across Greece. In particular I have been a Lecturer in Mathematics at the Department of Economics in University of Athens, at the Department of Applied Mathematics in University of Crete, at the Department of Mathematics in University of Thessaly, at the Department of Energy Systems in University of Thessaly, at the Department of Agribusiness and Supply Chain Management in Agricultural University of Athens, at the Department of Naval Architecture in University of West Attica, at the Department of Industrial Design and Production Engineering in University of West Attica and at the Department of Statistics in Athens University of Economics and Business.

Research and writing activity

My research interests include but are not limited to Stochastic Models in Mathematical Finance by using Monte Carlo Methods, Functional Analysis, Linear Algebra, Dynamical Systems and Models in Finance by using Functional Analysis and Linear Algebra, Solving Ordinary and Partial Differential Equations which appear in Mathematical Finance by using Lie Point symmetries and Differential Galois Theory. I have more than 35 publications in high-ranking journals. I also serve as a reviewer for scientific journals. I have held a post-doctoral research position at the Department of Economics at NKUA in Solving Differential Equations by using Symmetry Methods.

Recent indicative publications

1 Leventides J, Melas E, Poulios C, Boufounou P, Leventides R-A. (2022). Designing GDP-linked Bonds with default. to appear in Applied Economics Quarterly, 26 p.

2. Leventides J, Melas E, Poulios C. (2022). Extended dynamic mode decomposition for two paradigms of non-linear dynamical systems. Journal of the Franklin Institute, https://doi.org/10.1016/j.jfranklin.2022.10.024

3. Leventides J, Melas E, Poulios C. (2022). Extended dynamic mode decomposition for cyclic macroeconomic data. Data Science in Finance and Economics AIMS 2(2), 117- 146.

4. Leventides J, Melas E, Poulios C, Leventides R-A. (2021). Mapping GDP-linked bonds: the case of the Greek economy. KEPE Greek Economic Outlook 46, 49-62.

5. Leventides J, Melas E. (2021). Diffusion bank networks and capital flows. Mathematics and Financial Economics 15, 811-845

6. Leventides J, Melas E, Poulios C. (2022). Analysis of chaotic economic models through Koopman operators, EDMD, Takens' theorem and Machine Learning. *Data Science in Finance and Economics AIMS* **2**(4), 416-436.

7. E. Melas '*Classes of elementary function solutions to the CEV model. I.*' Journal of Computational and Applied mathematics **360** 62-77 (2019).

8. Leventides J, Melas E, Poulios C. (2022). Data arising from hyperchaotic financial systems. Control through Koopman operators and EDMD. 4th International Conference on Industrial Artificial Intelligence, August 24-27, 2022, Shenyang, Liaoning, China.

9. Leventides J, Melas E, Poulios C. (2022). EDMD methods for analysis and prediction of bilinear compartmental models. 4th International Conference on Industrial Artificial Intelligence, August 24-27, 2022, Shenyang, Liaoning, China.

10. Leventides J, Melas E, Poulios C, Boufounou P, Leventides R-A. (2022). Designing GDP-linked Bonds with default. **to appear** in *Applied Economics Quarterly*, 26 p.