CV OF MARIANNA BOLLA, DSc.

- **Professional studies and degrees**
  - Undergraduate and graduate studies at the Eötvös Loránd University, Faculty of Sciences, Budapest: MSc in Mathematics (Probability and Statistics).
  - CSc in Mathematics, Hungarian Academy of Sciences, 1993.
  - Title of Doctor Habil, Budapest University of Technology and Economics, 2014.
  - Doctor of the Science, Hungarian Academy of Sciences (DSc), 2018.
- **Affiliations**
  - Assistant professor, Department of Mathematics, Faculty of Civil Engineering, Technical University of Budapest), 1992–1996.
  - Associate professor, Department of Stochastics, Institute of Mathematics, Budapest University of Technology and Economics (former Technical University of Budapest), 1996–2019.
  - Full professor, Department of Stochastics, Institute of Mathematics, Budapest University of Technology and Economics (former Technical University of Budapest), 2019–.
- **Scholarships and fellowships**
  - Postdoctoral fellowship at the Alfréd Rényi Mathematical Institute of the Hungarian Academy of Sciences, Budapest, 1988-1990.
  - Visitor of the DIMACS, Center for Discrete Mathematics, Rutgers University, NJ, USA, 1990–1991.
  - Farkas Bolyai scholarship (2000).
- **Language skills**
  - English language state exam, upper grade.
  - Russian language state exam, medium grade.
  - Speaks and reads in French (basic level).
- **Scientific activity**
  - **Publications**

    34 research papers (mostly in English in peer reviewed WoS journals) 4 books (one Wiley monograph), 5 book chapters, 19 conference papers and 4 university textbooks (partly electronic), occasionally with coauthors; about 200 independent citations.
  - **11 distinguished publications**

    1. Bolla, M., Spectra, Euclidean representations and clusterings of hypergraphs, *Discrete Mathematics* **117** (1993), 19-39.
    2. Bolla, M., Michaletzky, Gy., Tusnády, G., Ziermann, M., Extrema of sums of heterogeneous quadratic forms, *Linear Algebra and Its Applications* **269** (1998), 331-365.
    3. Bolla, M., Distribution of the eigenvalues of random block-matrices. *Linear Algebra and Its Applications* **377** (2004), 219-240.
    4. Bolla, M., Friedl, K., Krámli, A., Singular value decomposition of large random matrices (for two-way classification of microarrays), *Journal of Multivariate Analysis* **101** (2010) 434-446.
    5. Bolla, M., Penalized versions of the Newman–Girvan modularity and their relation to normalized cuts and k-means clustering, *Physical Review E* **84** (1), 016108 (2011).
    6. Bolla, M., Spectral Clustering and Biclustering. Learning Large Graphs and Contingency Tables. Wiley, 2013.
    7. Bolla, M., Modularity spectra, eigen-subspaces and structure of weighted graphs, *European Journal of Combinatorics* **35** (2014), 105-116.
    8. Bolla, M., Bullins, B., Chaturapruek, S., Chen, S., Friedl, K., Spectral properties of modularity matrices, *Linear Algebra and Its Applications* **73** (2015), 359-376.

9. Bolla, M., Relating multiway discrepancy and singular values of nonnegative rectangular matrices, *Discrete Applied Mathematics* **203** (2016), 26-34.
10. Bolla, M., Factor Analysis, Dynamic. Wiley StatsRef: Statistics Reference Online: 1-15, article stat07505. John Wiley&Sons, Ltd. (ISBN 9781118445112), 2017.
11. Bolla, M., Szabados, T., Multidimensional Stationary Time Series. CRC Pesss, Taylor and Francis Group, 2021.

- **Professional public activities and memberships**
  - Member of the János Bolyai Mathematical Society, from 1980 to date.
  - Member of the American Mathematical Society (AMS), 1986-1996.
  - Reviewer of the STMA (Statistical Theory and Method Abstracts) AMS, 1992-2002.
  - Reviewer no. 072120 of the Mathematical Reviews, AMS, from 2010 to date.
  - Managing editor of the book *Contests in Higher Mathematics, Miklós Schweitzer Competitions* 1962 -1991, *Springer*, 1996 (ed. Gábor J. Székely, series ed. Paul R. Halmos), ISBN 0-387-94588-1.
  - Referees for journals Annals of Mathematics and Artificial Intelligence, Discrete Applied Mathematics, Biometrika, and Electronic Journal of Linear Algebra. Also makes book reviews for the Taylor and Francis.
  - Regularly invited to review PhD theses and research projects.
  - Participation in commissions, evaluating projects. Invited into evaluation committees (PhD thesis defenses, complex exams, final MSc exams).
  - Provides talks at seminars (BME, Rényi Institute of Mathematics HAS) and international conferences (for example, COMPSTAT, EMS, PLS). Gave a series of invited talks in India for the invitation of the C.R. Rao Advanced Institute of Mathematics, Statistics and Computer Science, Hyderabad (AIMSCS), Calcutta (ISI), Bangalore (ISI), 2010-2011.
  - Organized and chaired a session at the 29th European Meeting of Statisticians (Budapest, 2013).

- **Awards and merits**
  - Award by the president of the Hungarian Academy of Sciences for the Statistical Researches on Multiple Congenital Abnormalities of Newborns, 1980.
  - Award for Junior Researchers of the of the Research Institute for Computer Science and Control of the Hungarian Academy of Sciences, 1983.
  - Best publication award of the National Institute of Psychiatry, 1992.
  - Farkas Bolyai Award for teaching and research in Mathematics, 2000.
  - Excellent Lecturer of the Faculty of Sciences (BME) award, 2018.
  - Included in the book: *Women in the Hungarian science* (in Hungarian), eds. Balogh, M., Palasik, M., Napvilág Publishing House, Budapest, 2010.
  - Included in the book Who is Who Hungary, 2013.

- **Supervising activity in higher education**

  Supervised 14 BSc and MSc theses, 3 TDK (Hungarian student research, BME), 4 undergraduate research (BSM), and 4 PhD students (who have defended their theses).

- **Participation in projects and applications**
  - National Research Projects for the statistical investigation of congenital abnormalities of newborn babies and modelling the ecosystem of lake Balaton, Research Institute for Computer Science and Control HAS (1979-1984).
  - National Research Project on Dynamic factor analysis, principal investigators: Margit Ziermann and Gábor Tusnády (1993-1996).
  - NKFP-2-0017 project on Data mining (BME and Research Institute for Computer Science and Control HAS), principal investigator: Domokos Szász (2002-2004).

– NKFP-2-0004-05 Astor 007 project on Data mining (BME and Research Institute for Computer Science and Control HAS), principal investigator: Domokos Szász (2005-2008).

– National Research Project OTKA 76481: Statistical Investigation on Large Random Matrices. Principal investigator: Gábor Tusnády (2009-2012).

– National Research Project OTKA-KTIA 77778: Future Internet (with ELTE). Principal investigator: Károly Simon (2009-2012).

– TÁMOP-4.2.2.C-11/1/KONV-2012-0001, ETIK FIRST project: Future internet research from the theory to the applications (with University of Debrecen). Principal investigator at the department: Károly Simon (2012-2015).

– I applied statistical methods for real-life psychological, oncological, sociological and financial data (National Institute of Psychiatry and Neurology, Oncology, TÁRKI, OÉTI, FORNAX, TESCO), also included and advised students in the applications.

– I was external expert of the STOMOGRAPH project of the VTT Technical Research Centre of Finland (2016-2017).

– In the Institute of Mathematics, Faculty of Sciences (BME) I am the leader of the BME FIKP-MI/SC project in the framework of the 'Higher Education Excellence Program of the Ministry of Human Capacities in the frame of Artificial Intelligence research area of Budapest University of Technology', I coordinate three colleagues and two PhD students. Principal investigator: János Levendovszky, VIK (2018–2021).