Personal Information

Full Name (previous name)	Gabriela Czanner (born Gabriela Moravcikova)		
Work Address	Department of Eye and Vision Science		
	Room 287, 2 nd floor William Henry Duncan (Apex) Building,		
	6 West Derby Street		
	Faculty of Health & Life Sciences		
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Metrics (from google scholar, 14.03.17)

number of cites	582
h-index	8
i-10index	6

Education / Qualifications

2004	PhD in Statistics.	Department of	Statistics.	Universitv	of Pittsburgh	(USA)
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- 2002 MSc in Applied Statistics, Department of Statistics, University of Pittsburgh (USA)
- 1999 MA in Economics, Department of Economics, University of Pittsburgh (USA)
- 1994 MSc in Mathematical Statistics, Probability and Computer Science, Department of Probability and Mathematical Statistics, University of Comenius (5-years degree, including 3 years of undergraduate courses in Mathematics)

Professional History

The University of Liverpool, Lecturer in Biostatistics,
50% FTE Department of Eye and Vision Science,
50% FTE Department of Biostatistics
University of Warwick, Research Fellow
University of Oxford, Research Statistician
University of Warwick, Wellcome Trust ViP Research Fellow
in Biomedical Science
Harvard Medical School and Massachusetts General
Hospital, Boston, USA, Postdoctoral Research Fellow
University of Pittsburgh, USA, Research Assistant
University of Pittsburgh, USA, Teaching Assistant
University of Comenius, Slovakia, Teaching Fellow
Economic University, Slovakia, Teaching Fellow
University of Comenius, Slovakia, Teaching Fellow

Other Appointments and Affiliations

A) Membership of academic societies

2015 - presentAssociation for Research in Vision and Ophthalmology2014 - presentMember of the International Society for Clinical Biostatistics

- 2012 present Chartered Statistician of the Royal Statistical Society
- 2009 present Member of the Royal Statistical Society

B) Peer Review and Editorial Activities

 2012 - present Reviewer for NIHR HTA, MRC, EPSRC, Macular Society UK
2012 - present Reviewer for journals: CEVG Cochrane Eyes and Vision Reviews: Graefe's Archive for Clinical and Experimental Ophthalmology, Computational Statistics and Data Analysis, British Journal of Ophthalmology

C) Membership of University of Liverpool Committees

- 2014 2015 Member of communications committee at Institute of Translational Medicine
- 2013 2014 Member of Athena Swan committee at Institute of Translational Medicine

Prizes, Awards and Other Honours

- 2008 Wellcome Trust ViP Award, 12 months fellowship
- 2003 Best Senior PhD Student, Department of Statistics, University of Pittsburgh
- 2001 Best Junior PhD Student, Department of Statistics, University of Pittsburgh
- 1997-99 Scholarship from United States Agency for International Development Visiting Research Scholar, Department of Economics, U of Pittsburgh, USA, 2 years, to develop Economics portfolio at Faculty of Mathematics, Physics and Informatics at Comenius University

Grants

- New mathematical sciences capabilities for healthcare technologies. EPSRC Centres for Mathematical Sciences in Healthcare. EPSRC contribution £2,085,053. 2015 – 2019 (48 months) (PI: Ke Chen, Co-I: Movchan A, Bearon R, Elsheikh A, Brien SO, See V, Webb S, Barrett S, Czanner G, Falciani F and others)
- Discriminant function analysis for longitudinal data: applications in medical research awarded by the Medical Research Council. (DiALog, MRC MRP), PI: García-Fiñana M, CoI: Cox T, Czanner G, Harding SP, Marson T, Bonnet L. Topic: Development of a novel timedependent approach for discriminant classification with applications in diabetic retinopathy. Value: £415,632, Jan 2014 - Dec 2016.
- Development of multivariate statistical models for the understanding of ageing and diabetic changes in ocular function and structure. (Joint Faculty Funded Studentship from Institute of Translational Medicine and Institute of Ageing and Chronic Disease, University of Liverpool), PI: Czanner G, CoI: García-Fiñana M, Harding SP. Value: £52,000, Sep 2013 – Aug 2016.
- Early detection in macular disease: A psychophysical screening test for neovascular agerelated macular degeneration. (Dunhill Medical Trust), PI: Knox P, CoI: Harding SPH, Heimann H, Czanner G. Value: £131,000, Sep 2013 – Aug 2016.

Invited Talks

Plenary talk in international conference

2008 (Feb) Using Dynamic Signal Processing Tools and Statistical Inference. *7th International Conference on Applied Mathematics: Aplimat,* Slovak University of Technology, Feb 5-8, 2008, Bratislava (**Slovakia**).

Departmental Seminars

- 2015 Statistical perspective of measuring the information in biological data. Department of Biostatistics and Informatics, University of Denver Colorado (**USA**). Invitation by: Dr Brandie Wagner (May)
- 2014 Spatial statistical analysis of haemorrhages in Fluorescein Angiography for Malarial Retinopathy. Farr Statistics Group, Liverpool (**UK**). Invitation by: Prof Peter Diggle. (Nov)
- 2013 *Statistical perspective on measures of signal-to-noise ratio.* Neuroscience Statistics Research Laboratory MIT (**USA**). Invitation by: Prof Emery Brown. (May)
- 2013 *Applications of statistics in medicine.* Department of Applied Mathematics and Statistics, Comenius University (**Slovakia**). Invitation by: Prof Andrej Pazman. (Nov)
- 2012 On statistical challenges in clinical ophthalmology. Department of Biostatistics, University of Liverpool (**UK**). Invitation by: Seminar Chair. (July)
- 2011 Bayesian hierarchical time series modelling in gas supply chain management for UK. Department of Statistics, University of Warwick (**UK**). Invitation by: Seminar Chair. (May)
- 2008 Point process statistical framework for improved inference from neural spike train observations. Institute of measurement, Slovak Academy of Sciences, Bratislava, (Slovakia). Invitation by: Dr Viktor Witkovsky. (April)
- 2007 Analysis of between-trial and within-trial neural spiking dynamics in learning trials. Department of Computer Science, University of Warwick (**UK**). Invitation by: Prof Jianfeng Feng. (Nov)
- 2005 Applications of multivariate statistical methods and state-space models to analysis of electrophysiological properties of neurons. Boston University (**USA**). Invitation by: Prof Nancy Kopell. (Nov)
- 2004 *Three applications of statistics in neuroscience*. Invitation: University of Canterbury, Christchurch (**New Zealand**). Invitation by: Seminar Chair. (June)
- 2004 *Multivariate analysis and stochastic modelling with an application in neuroscience.* Neuroscience Statistics Research Laboratory, Harvard Medical School, Boston (**USA**). Invitation by: Prof Emery Brown. (April)
- 2004 *Theory of the snowflake plot and Its relations to higher-order analysis methods.* Free University, Berlin (**Germany**). Invitation by: Dr Sojna Grün. (April)
- 2004 *Multivariate analysis and stochastic modelling with an application in neuroscience.* Duquesne University, Pittsburgh (**USA**) Invitation by: Seminar Chair. (Feb)

Invited talks to specialized groups

- 2016 *10 Things you need to know about statistical methods in ophthalmology.* Royal College of Ophthalmologists (Liverpool) **(UK)**. (Feb)
- 2015 *Perils of Dichotomisation.* Royal College of Ophthalmologists (London) **(UK)**. Invitation by National Ophthalmic Statistics Group. (May)
- 2014 *Challenges of image analysis in ophthalmology*. NIHR Statistics, Imaging Group Section, Oxford (**UK**). Invitation by: Programme Chair

- 2014 *Ophthalmic statistics at University of Liverpool and St Paul's Eye Unit.* Ophthalmic Statistics Group meeting, Moorefield's Hospital (**UK**). Invitation by: Dr. Catey Bunce
- 2011 *Gas supply modelling*. National Grid, Coventry (**UK**). Invitation by: Supply management team, National Grid. (Nov)

Academic Supervision

MRes Student as primary supervisor

- 2016 Henal Desai: Developing a predictive statistical model: Aortic complications following endovascular aneurysm repair". MRes Clinical IACD programme, The University of Liverpool (Project leader of third project from April till July, 1 student, 12 contact hours) **Best poster award at IACD**, with Iain Roy and Prof Srinivasa Vallabhaneni. **Contributed talk** at The Vascular Societies ASM, November 2016
- 2014 Amanda Waleh-Astrom: Ordinal logistic regression and application in diabetic retinopathy. Sept-Dec 2014. Now PhD student at University of Gavle, Sweden.

MBChB as primary supervisor

- 2015-2016 3 clinical students of 3rd year MBChB: Chris Bell, Manoharan Kumararaj and Thomas Hughes, 8-monhts long projects.
- 2014-2015 1 clinical student of 3rd year MBChB: Ashwin Balu: 1-year long project.

MD Student as primary supervisor

2016- Mohamed Barkat: Investigation of 'Aneurysm Repair Decision Aid (ARDA)' for Management of Abdominal Aortic Aneurysms: Validation and Impact Assessment. Co-advisors: Professor SR Vallabhaneni Professor Rachel Williams.

PhD Students as primary supervisor

- (2017-) Currently advertised: Quantitative retinal image analysis for monitoring of diseases: application in wide field imaging for retinal vascular diseases (Department of Eye and Vision Science), co-advisors: Simon P Harding and Yalin Zheng.
- (2013-) Padraic Walsh: Multivariate modelling for finding potential prognostic biomarkers in clinical observational studies with multiple outcomes. First supervisor: Dr Czanner (50%), Cosupervision: Dr. Garcia-Finana (25%, Department of Biostatistics) and Prof. Harding (25%, Department of Eye and Vision Science)

PhD Students as secondary supervisor

- (2016-) Claire Howard: What factors influence adaptation to post stroke homonymous hemianopia? First supervisor: Dr Rowe (Department of Biostatistics), co-advisors: Czanner G (10%), Knox P, Griffiths H, Tyrrell P.
- (2014-) Nazatulshima Hassan: *Review and extension of Principal Component Analysis: Applications to Biomedicine.* First supervisor: Dr Garcia-Finana (50%, Department of Biostatistics), co-advisors: Dr Czanner (30%), Dr Jorgensen (20%, Department of Biostatistics)
- (2013-) Riham ElSaeiti: *Extension of discriminant function analysis methods and applications in medicine.* First supervisor: Dr Garcia-Finana (50%), co-advisor Czanner (50%).
- (2012-) Ankur Raj: Doctor of medicine. Diabetic retinopathy: Functional and structural study. First supervisor: Prof Harding (75%), co-advisor: Czanner G (25%). Thesis submitted in 2016.

Knowledge Transfer / Exchange Activity

2017 I **am leading the design, development and delivery** of a pre-conference statistics course for ARVO 2017 international meeting of Association for Research in Vision and Ophthalmology, May 2017) together with Prof S

2017 Coupland (U of Liverpool) and Dr Gaynes (Loyola University Chicago). I am co-designing a statistics **online course for ARVO.**

- 2016- Independent Statistician at clinical trials.
- 2012 Engagement with researchers from St Paul's Eye Unit, at the Royal Liverpool University Hospital, where I plan a key role in the improvement of the quality of research proposals, and of other research activities within the unit. I established and lead the Centre of Statistical Consulting for St Paul's Eye Unit at Royal Liverpool University Hospital and IACD:

http://pcwww.liv.ac.uk/~czanner/consultations.htm

- 2015-2016 As Chair of the Merseyside Group of the Royal Statistical Society (RSS), I contribute to public engagement, organizing lectures for statisticians and for a wider public and visiting local schools to talk about mathematics in every-day life.
- 2013-2015 As member of the **Committee of the Royal Statistical Society General Applications Section**, I organised international research meetings in specialised areas for a wide variety of audiences (e.g., PhD students, postdoctoral researchers and practitioners). In particular I organised and chaired two meetings: "Challenges in analysis of observational data" (London, 12 February 2014) and "Supervised Classification" (10 June 2014, Liverpool).
- 2012 I am an active member of the national Ophthalmic Statistics Group led by Dr Catey Bunce (UCL/Kings College) and contributed to educational short papers published in the British Journal of Ophthalmology. I now became a member of the working group of Ophthalmology NIHR.
- 2012-2015 I collaborated with **PolyPhotonics Ltd** as a senior statistician on study INSIGHT study (A prospective clinical study of organic light emitting diode therapy sleep masks in normal adult healthy volunteers and patients with diabetic macular oedema), see publication Sahni et al. *Eye* 2016.
- 2010-2012 Collaboration with several industrial partners: **National Grid** (project on gas supply modelling to UK) and **London Underground & Metronet** (project on asset management**), Pulse Dynamics** (project on managing internal services of the company). This collaboration was done as part of my role at Risk Initiative and Statistical Consultancy Unit, University of Warwick, UK

ENABLING ACTIVITY

Internal PhD examiner

2017 Lauren Hepworth, PhD thesis, University of Liverpool

Editorial activities

- 2016 Present: Associate Editor in Biostatistics for BMJ Open Ophthalmology.
- 2016 Present: **Member of Editorial Board** as a Statistical Advisor for *Graefe's Archive for Clinical and Experimental Ophthalmology*
- 2016 Present: **Member of Editorial Board** for International *Journal of Multivariate Data Analysis*
- 2015 Present: Member of External Advisory Board for the journal Slovenská štatistika a demografia (in Slovak language, Slovak statistics and demography), The Statistical Office of the Slovak Republic, ISSN: 1339-6854 (online), ISSN 1210-1095 (print)
- 2012 Present: **Member of Editorial Board**: Journal of Applied Mathematics and Engineering, ISSN: 1337-6365, Slovakia
- 2012 Present: **Member of Conference Scientific Board** for conference APLIMAT (Applied Mathematics), Slovakia
- 2012- Present: I contribute to peer-review for many first-class academic journals as detailed above.

Involvement in managerial activities at University of Liverpool

- I continuously participate in interviewing panels for jobs and studentships in my both Departments. My role comprises helping to write the statistical aspects of the job description, shortlisting and interviewing candidates.
- 2015 Present: **PGR director and MRes convenor** for the Department of Biostatistics. I organize Annual Review Panels for progression of PhD students. I also set up the system to match students' needs with training opportunities.

Academic leadership

- 2016- Present: Member of EPSRC Peer Review Associate College
- 2012 Present: I set up and lead Centre of Statistical Consulting for Department of Eye and Vision Science, St Paul's Eye Unit & Institute of Ageing and Chronic Disease. I manage the centre and give advice on the design and statistical analysis of grant applications for eye researchers (students, clinicians, research fellows and academic staff). Web page: <u>http://pcwww.liv.ac.uk/~czanner/consultations.htm</u>
- 2015 2016: Chair of Merseyside Group of Royal Statistical Society (RSS). I organised and chaired the meetings on statistics for a general audience, in which include students, academics, practitioners and the public. In particular, I organised a successful half day meeting on "Ophthalmic Biostatistics" (11th May 2015, Liverpool), which is reported in the magazine RSS News and for which feedback is (see also my web page): "Interesting and relevant topics, friendly atmosphere, very well presented and accessible talks".
- 2011 2012: Committee member West Midlands Group of the Royal Statistical Society, where I co-organised national meetings.

Publications

Before 2002 I published under the name Moravcikova G

A) Chapters in books

- Chajdiak J, Alexy P, Gondor M, Hrnciarova L, Komar M, Moravcikova G. Statistics, Textbook for University of Economics (in Slovak language), ISBN 80-225-0856-X, ed. EKONOM, Bratislava, 1997
- Sodomova E, Brckova V, Knizatova E, Moravcikova G, Pacakova V, Pazitna M, Rublikova E. Statistics A, Textbook for University of Economics (in Slovak language), ISBN 80-225-1061-0, ed. EKONOM, Bratislava, 1997

B) Journal articles

Original peer-reviewed research

- Sahni J, Czanner G, Gutu T, Kate M Bennett K, Wuerger SM, Grierson I, Murray-Dunning C, Holland MN, Harding SP, Safety and acceptability of an organic light emitting diode sleep mask as a potential therapy for retinal disease. *Eye* 2017; 31(1):97-106. PMCID: PMC5233944 (IF 2.1)
- Ho WMV, Hussain R, Czanner G, Heimann H, Damato BE. Porous vs non-porous orbital implants after enucleation for uveal melanoma: a randomized study. *Ophthal Plast Reconstr Surg.* 2016 [Epub ahead of print] PMID: 27861329 (IF 0.99)
- 3. Silvester A, Neal T, **Czanner G**, Briggs M, Harding S, Kaye S. Adult bacterial conjunctivitis: resistance patterns over 12 years in patients attending a large primary eye care centre in the UK. *BMJ Open Ophthalmol*, 1(1) DOI: 10.1136/bmjophth-2016-000006 (IF 3.04)
- 4. Aslam TM, Tahir HJ, Parry NRA, Murray IJ, Kwak K, Heyes R, Saleh MM, **Czanner G,** Ashworth J. Automated measurement of visual acuity in pediatric ophthalmic patients using principles of game design and tablet computers. *Am J Ophthalmol.* 2016(170):223-227. (IF 3.8)
- 5. Hughes D, Komarek A, **Czanner G,** Garcia-Finana M. Dynamic longitudinal discriminant analysis using multiple longitudinal markers. *Stat Methods Med Res.* First published date: October 2016. DOI: 10.1177/0962280216674496 (IF 4.6)
- 6. Knox PK, MacCormick IJC, Mbale E, Malewa M, Czanner G, Harding SP. Longitudinal visuomotor development in a malaria endemic area: cerebral malaria and beyond. *PLoS One* . 2016;11(10):e0164885. doi:10.1371/journal.pone.0164885. PMCID: PMC5072745 (IF 3.2)
- Chan YK, Czanner G, Shum HC, Williams RL, Cheung N, Wong D. Towards better characterisation and quantification of emulsification of silicone oil in vitro. *Acta Ophthalmol* 2016. [Epub ahead of print] DOI: 10.1111/aos.13258 (IF 3.0)
- Vallabh NA, Sahni JN, Parkes CK, Czanner G, Heimann H, Damato B. Near infrared reflectance and autofluorescence imaging characteristics of choroidal nevi. *Eye* 2016. DOI: 10.1038/eye.2016.183. (IF 2.1)
- Aslam TM, Parry NRA, Murray IJ, Salleh M, Dal Col C, Mirza N, Czanner G, Tahir HJ. Development and testing of an automated computer tablet-based method for self-testing of high and low contrast near visual acuity in ophthalmic patients. *Graefes Arch Clin Exp Ophthalmol.* 2016; 254(5):891-899. (IF 1.9)
- 10. Mittal R, Araujo I, **Czanner G,** Coupland S. Perforin expression in eyelid sebaceous carcinomas: a useful and specific immunomarker for the differential diagnosis of eyelid carcinomas. *Acta Ophthalmol* 2016; 94(5):e325-e330. (IF 3.0)
- 11. Cox T, **Czanner G**. A practical divergence measure for survival distributions that can be estimated from Kaplan-Meier curves. *Stat Med* 2016; 35(14):2406-2421. (IF 2.0)
- 12. Tidbury L, **Czanner G**, Newsham D. Fiat Lux: The effect of illuminance on visual and stereo acuity testing, *Graefes Arch Clin Exp Ophthalmol* 2016; 254(6):1091-1097. (IF 1.9)

- Balaskas K, Tiew S, Czanner G, Tan AL, Ashworth J, Biswas S, Aslam T. The novel evidenced assessment of tortuosity system: interobserver reliability and agreement with clinical assessment. *Acta Ophthalmol* Online 21 Dec 2015. DOI: 10.1111/aos.12907. (IF 3.0)
- MacCormick IJC, Czanner G, Faragher B, Developing retinal biomarkers of neurological disease – an analytical perspective. *Biomark. Med.* 2015; 9(7): 691–701. (IF 2.2)
- Boonarpha N, Zheng Y, Stangos AN, Lu H, Raj A, Czanner G, Harding SP, Nair-Sahni J, Standardisation of choroidal thickness measurements using enhanced depth imaging optical coherence tomography, *Int J Ophthalmol* 2015 18;8(3):484-91. (IF 0.9)
- Czanner G, Sarma SV, Ba D, Eden UT, Wu W, Eskandar E, Lim HH, Temereanca S, Suzuki WA and Brown EN. Measuring the signal-to-noise ratio of a neuron. *Proc Natl Acad Sci U S A*. 2015 Jun 9;112(23):7141-6. (IF 9.4)
- 17. Stewart RMK, Sheridan C.M, Hiscott PS, **Czanner G**, Kaye SB. Human conjunctival stem cells are predominantly located in the medial canthal and inferior forniceal areas. *Invest Ophthalmol Vis Sci.* 2015 Feb 26;56(3):2021-30. (IF 3.5)
- 18. Spiteri N, Siradas G, **Czanner G**, Batterbury M, Kaye SB. Assessing the quality of ophthalmic anaesthesia. *J Clin Anesth* 2015 June; 27(4):285-9. (IF 1.3)
- Cumberland PM, Czanner G, Bunce C, Dore CJ, Freemantle N, Garcia-Finana M. Ophthalmic statistics note: the perils of dichotomizing continuous variables. *Br J Ophthalmol* 2014;98: 841-843. (IF 3.0)
- Raj A, Sahni JN, Campa C, Czanner G, Hagan R, Harding SP. Macular function: better than visual acuity for assessing diabetic maculopathy? *Eur J Ophthalmol* 2013; 23(3): 459-460. (IF 1.0)
- 21. Green J, **Czanner G**, Reeves G, Watson J, Wise L, Roddam A, Beral V. Menopausal hormone therapy and risk of gastrointestinal cancer: prospective study and meta-analyses. *Int J Cancer 2012*;130(10): 2387-96. (IF 5.5)
- Sarma S, Nguyen D, Czanner G, Wirth S, Suzuki W, Wilson MA, Brown E. Error analysis for point process adaptive filters: A bootstrap approach. *Neural Comput* 2011;23(11): 2731-45. (IF1.6)
- Petrasova A, Czanner S, Czanner G, Farrer J, Chalmers A, Wolke D. The influence of dynamic scene changes in positioning and manipulating VR tasks. *J Appl Math* 2010;3(1): 259-268. (IF 1.5)
- Green J, Czanner G, Reeves G, Watson J, Wise L, Beral V. Oral bisphosphonates and risk of cancer of the oesophagus, stomach and colorectum: nested case-control study. *Br Med J* 2010;341(7772): 545-552. (IF 10.0)
- 25. **Czanner G**, Eden UT, Wirth S, Yanike M, Suzuki WA, Brown EN. Analysis of between-trial and within-trial neural spiking dynamics. *J Neurophysiol* 2008;99(5): 2672-2693. (IF 4.6)
- 26. **Czanner G,** Grün S, Iyengar S. Theory of the snowflake plot and its relations to higher-order analysis methods. *Neural Comput 2005;*17(7): 1456-1479 (IF 1.6)
- Krimer LS, Zaitsev AV, Czanner G, Kroner S, Gonzalez-Burgos G, Povysheva NV, Iyengar S, Barrionuevo G, Lewis DA. Cluster analysis-based physiological classification and morphological properties of inhibitory neurons in layers 2-3 of monkey dorsolateral prefrontal cortex. *J Neurophysiol* 2005;94(5): 3009-3022 (IF 2.9)
- 28. Mikulecky M, **Moravcikova G**, Czanner S. Lunisolar Tidal Waves, Geomagnetic Activity and epilepsy in the light of multivariate coherence. *Braz J Med Biol Res* 1996, ISSN 0100-879X, August 1996, volume 29, 4 pages (IF 0.96)

Non-peer reviewed articles

• What to expect when meeting a statistician. Urology News (Jun 2015) and Eye News (Aug 2014)

• Interview for Phys.org on my PNAS paper (July 2015). http://phys.org/news/2015-07decoding-brain-scientists-redefine-single-neuron.html

Papers Published in Conferences Proceedings

- 1. Petrasova A, **Czanner G**, Happa J, Czanner S, Wolke D, Chalmers A, Assessing a virtual baby feeding training system, Proceedings of the 7th International Conference on Computer Graphics, Virtual Reality, *Visualisation and Interaction*, Pages: 37-44, Franschhoek, South Africa, June 21 23, 2010
- 2. Hulusic V, **Czanner G**, Debattista K, Sikudova E, Dubla P, Chalmers A. Investigation of the beat rate effect on frame rate for animated content, *SCCG09*, 23-25 April 2009, Budmerice, Slovakia, 2009
- 3. **Czanner G**, Sarma SV, Eden UT, Brown EN. A Signal to noise ratio estimator for generalised linear model systems. *World Congress on Engineering*, London, 2-4 July 2008

Theses

- 1. **Czanner G.** Applications of statistics in neuroscience. PhD. Thesis in Statistics. School of arts and sciences. University of Pittsburgh, 2004.
- Moravcikova G. Multivariate spectral analysis of time series with application in medicine. M.Sc. Thesis in Statistics. School of mathematics, physics and informatics. Comenius University, Bratislava, Slovakia, 1994.