

# CURRICULUM VITÆ

## PERSONAL DATA

Name: Martin Plešinger  
Date of birth: April 16, 1980  
Place of birth: Liberec, Czechoslovakia  
Citizenship: Czechia (Czech Republic), EU  
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## EDUCATION

- School-leaving exam in Mechanical Engineering at Technical School in Mechanical Engineering and Electrotechnics (SPŠSE), Liberec, 1998.
- Ing. degree in Science Engineering (M.Sc. equivalent in the Czechia) at Technical University of Liberec (TUL), Faculty of Mechatronics and Interdisciplinary Engineering (FM), 2004.
  - Courses (among many others):
    - Numerical methods in linear algebra, Prof. ZDENĚK STRAKOŠ,
    - Implementation of numerical methods, PROF. LADISLAV LUKŠAN (nonlinear optimization), Prof. MIROSLAV TŮMA, and Doc. MIRO ROZLOŽNÍK (parallel computing and computers).
  - School research (bachelor) project: “Simulation of Turonian Aquifer Remediation Process” (in Czech), 2002–2003. Supervisor of the school research project: RNDr. JAN NOVÁK, Ph.D. (in cooperation with the Mathematical Modeling Research Center, DIAMO, state enterprise).
  - Diploma (master) thesis: “Selected Numerical Linear Algebra Problems in Control Theory” (in Czech), 2004. Supervisor of the diploma thesis: Prof. Ing. ZDENĚK STRAKOŠ, DrSc.
- Ph.D. degree in Science Engineering at Technical University of Liberec, Faculty of Mechatronics and Interdisciplinary Engineering, 2008.
  - Courses (among others):
    - Introduction to functional analysis, Prof. IVO MAREK and Prof. LADISLAV LUKŠAN,
    - Introduction to numerical methods, Prof. ZDENĚK STRAKOŠ,
    - Computer architectures and programming tools, Prof. MIROSLAV TŮMA,
    - Matrix theory and its applications in numerical mathematics, Prof. MIROSLAV FIEDLER.
  - Doctoral thesis: “The Total Least Squares Problem and Reduction of Data in  $AX \approx B$ ”, 2008. Supervisor of the doctoral thesis: Prof. Ing. ZDENĚK STRAKOŠ, DrSc.  
**AWARDED** the Jiří Zelenka Prize of Technical University of Liberec for the excellent doctoral thesis (2008).
- Post-doc projects:
  - Seminar for Applied Mathematics, Dept. of Math., ETH Zürich. SciEX project No 09.071. Mentor Prof. Daniel Kressner (2010–2011).
  - Department of Mathematics, TU Liberec. ESF OPVK project No CZ.1.07/2.3.00/30.0065. Mentor Prof. Ivo Marek (2013–2015).
- Habilitation (Doc.) in Applied Mathematics at VŠB–Technical University of Ostrava, Faculty of Electrical Engineering and Computer Science, 2018, with habilitation thesis: “Matrix and Tensor Computations. Analysis and Applications” (collection of papers published in years 2009–2016 with Czech commentary; submitted 2016).

## FURTHER EDUCATION (SEMINARS, COURSES, WORKSHOPS, SUMMER AND WINTER SCHOOLS)

- Summer school in “Control of Solids and Structures”, International Centre for Mechanical Sciences, Udine, Italy, 2004.
- Series of internat. summer schools (and workshops) in Numerical Linear Algebra and Applications, Istituto per le Applicazioni del Calcolo, Consiglio Nazionale delle Ricerche, Monopoli-Bari, Italy:
  - 3rd School in “Numerical Linear Algebra in Image Deblurring”, 2005,
  - 4th School (workshop) in “Numerical Linear Algebra in Signals and Systems”, 2006, and
  - 6th School in “Linear Systems Theory, Control and Matrix Computations”, 2008.
- Series of “Winter Schools in High-performance and Parallel Computers, Programming Technologies, and Numerical Linear Algebra”, organized as a part of SNA conferences by:
  - Institute of Geonics, AS CR & VŠB–TUO, in Ostrava, 2005, 2007, 2009, 2015, 2017, 2019,
  - Institute of Computer Science (ICS), AS CR, in Sedlec–Prčice, 2006,
  - ICS & Faculty of Mechatronics, TU Liberec, in Liberec, 2008,
  - ICS & Institute of System Biology and Ecology, AS CR, in Nové Hradky, 2010,
  - Institute of Geonics, AS CR, in Rožnov pod Radhoštěm, 2011, 2013,
  - ICS & Faculty of Education, TU Liberec, in Liberec, 2012, and
  - Institute of Computer Science (ICS), AS CR, Nymburk, 2014.
- Series of summer schools “SDE: Seminar in Differential Equations”, Faculty of Applied Sciences, University of West Bohemia in Pilsen (ZČU):
  - SDE XXVI, in Kamenice nad Lipou, 2008,
  - SDE XXVIII, in Deštné v Orlických horách, 2012, and
  - SDE XXXI, in Velehrad, 2018.
- SIAG/LA–Simumat “International Summer School on Numerical Linear Algebra”, CIEM Castro Urdiales, Spain, 2008.
- Winter school: “New trends in scientific computing”, Centre International de Rencontres Mathématiques (CIRM), Luminy–Marseille, and Laboratoire d’Analyse, Topologie et Probabilité, Marseille, France, 2009.
- SNF Pro\*Doc Graduate School Workshop Disentis, Switzerland, August 18–21, 2010.
- Zürich Summer School (ZSS): “Sparse Tensor Discretizations of High-Dimensional Problems”, Seminar für angewandte Mathematik, ETH Zürich, Switzerland, August 23–27, 2010.
- Swiss Numerics Colloquium, ICS, Faculty of Informatics, Università della Svizzera italiana, Lugano, May 6, 2011.
- Advanced courses attended during the post-doc stay at ETH Zürich:
  - Tensor-structured Numerical Methods in Scientific Computing (MAT814), Prof. BORIS N. KHOROMSKIJ, Max–Planck Institute (MPI) Leipzig (visiting Universität Zürich (UZH)),
  - Compressive Sensing (401-4654-11L), Prof. HOLGER RAUHUT, Institut für Numerische Simulation, Universität Bonn (visiting ETH, under Pro\*Doc NumPDE project),
  - Colloquium in Numerical and Applied Mathematics (SAM Kolloquia).
- EMS School in Applied Mathematics (ESSAM) on “Mathematical Modelling, Numerical Analysis and Scientific Computing”, Faculty of Mathematics and Physics, Charles University in Prague, Kácov, 2016 and 2018.



## EMPLOYMENT AND GRANT PARTICIPATION

- **January 2003 – December 2004:** Freelancer in computer programming, collaboration in particular with the *Mathematical Modeling Research Center, DIAMO, state enterprise*.
- **July 2004 – February 2020 (short contract):** Institute of Computer Science, Academy of Sciences of the Czech Republic (Dept. of Computational Methods, Odd. 21), Ph.D. student (till 2008), post-doc (till 2014), scientific assistant (till 2015), and researcher.
  - Participation on the national “Information Society” project N<sub>o</sub> 1ET400300415: MSTEP, Modeling and Simulation of complex Technical Problems (Z. Strakoš), 2004–2008.  
(<http://www2.cs.cas.cz/mweb>)
  - Participation on the GAAS research grant N<sub>o</sub> IAA100300802: KRYLOV, Theory of Krylov subspace methods and its relationship to other mathematical disciplines (Z. Strakoš), 2009–2012.  
(<http://www.cs.cas.cz/krylov>)
  - Participation on the GAČR research grant N<sub>o</sub> GA13–06684S: IMAPA, Iterative Methods of computational mathematics: Analysis, Preconditioning, and Applications (M. Tůma), 2013–2017.  
(<http://www.cs.cas.cz/imapa>)
- **December 2004 – December 2011 (since July 2010 shortened):** Faculty of Mechatronics (FM), Technical University of Liberec (Dept. of Modelling of Processes (KMO), then Inst. of Novel Technologies and Applied Informatics (NTI)), Ph.D. student (till 2008), lecturer, and researcher.
  - Participation on the MŠMT “Research Centre” grant N<sub>o</sub> 1M0554: ART<sub>E</sub>C, Advanced Remediation TEchnologies and processes (J. Maryška), *several occasional short-term contracts*.  
(<http://artec.tul.cz>)
  - Participation on internal development project (internal TUL grant) N<sub>o</sub> 1257: Podpora talentovaných studentů a absolventů DSP na TUL (J. Nouza), 2009.
  - Internal grant N<sub>o</sub> FM-IG/2009/NTI-02: Golub–Kahanova bidiagonalizace, implementace a numerické vlastnosti (with K. Jurková, J. Ševic), 2009.
  - Internal grant N<sub>o</sub> FM-IG/2010/NTI-02: Řešení soustav lineárních algebraických rovnic vzniklých diskretizací parciálních diferenciálních rovnic obsahujících parametry zatížené nejistotami (with L. Kosková), 2010.
- **Fall semesters in years 2007/08–2009/10 (short term teaching contracts):** Faculty of Education (FP), TU Liberec (Dept. of Applied Mathematics (KAP), and Dept. of Mathematics and Didactics of Mathematics (KMD)), lecturer assistant.
- **July 2010 – June 2011:** Seminar for Applied Mathematics (Seminar für angewandte Mathematik (SAM)), Dept. of Mathematics, Swiss Federal Institute of Technology (ETH) Zürich, post-doc and lecturer assistant.
  - Fellow of SciEX–NMS<sup>ch</sup> program with project N<sub>o</sub> 09.071: KRYMOR, Preconditioned KRYlov subspace methods for large scale Model Reduction (D. Kressner (the host mentor) and with Z. Strakoš (the home mentor)), 2010–2011.
- **September 2011 – present:** Faculty of Education (FP), TU Liberec (Dept. of Mathematics and Didactics of Mathematics (KMD), since 2023 Dept. of Mathematics (KMA)), lecturer and researcher; since July 2016 deputy-head of the department; since February 2019 vice-dean for science, research, and Ph.D. studies at FP; since February 2024 vice-dean for science and creative activities at FP.
  - Participation on the ESF research project N<sub>o</sub> CZ.1.07/2.3.00/09.0155: Constitution and improvement of a team for demanding technical computations on parallel computers at TU Liberec (V. Finěk), 2011–2012.  
(<http://kmd.fp.tul.cz/old/ESF1615/esf1615.htm>)
  - Participation on the ESF development project N<sub>o</sub> CZ.1.07/2.2.00/18.0025: Distance studies for teachers at Faculty of education of TU Liberec (J. Šmída), fall semester 2012.  
(<http://kombinovanastudia.fp.tul.cz/projekt>)
  - Participation on the ESF research project N<sub>o</sub> CZ.1.07/2.3.00/30.0065: Support of the creation of excellent research and development teams at the TU Liberec (M. Malý), 2013–2015.  
(<http://www.ft.tul.cz/files/microsites/VaVTUL>)

- Internal grant N<sub>0</sub> FP-SGS/2016/21161: Total least squares problem and its tensor generalizations (with J. Žáková), 2016.
- Participation on the ESF development project N<sub>0</sub> CZ.02.2.69/0.0/0.0/16\_015/0002329: ROLIZ, The educational infrastructure of the TUL to raise the relevance, quality and advancement of education in the age of industry 4.0 (M. Hernych), 10–12/2017.  
(<https://www.tul.cz/roliz>)
- Advisor-participation on internal Ph.D. grant N<sub>0</sub> FP-SGS/2018/21254: Tensor methods and their analysis in numerical linear algebra (J. Žáková), 2018.
- Advisor-participation on internal Ph.D. grant N<sub>0</sub> SGS-2019-4037: Numerical methods in matrix and tensor computations (J. Žáková), 2019.
- Advisor-participation on internal Ph.D. grant N<sub>0</sub> SGS-2020-4022: Krylov subspace methods in core problem theory (J. Žáková), 2020.
- **Spring semester in year 2011/12 (short term teaching contract):** Faculty of Mechatronics, TU Liberec (NTI), lecturer.



## STAYS ABROAD

### LONG TERM STAYS

- July 2010–June 2011: Seminar for Applied Mathematics (Seminar für angewandte Mathematik), Dept. of Mathematics, Swiss Federal Institute of Technology (ETH) Zürich. *Post-doc position* mentored by Prof. Daniel Kressner. Funded by the Rektorenkonferenz der Schweizer Universitäten (<http://www.crus.ch>) and the European Union through the Scientific Exchange program SCIEEX (<http://www.sciex.ch>), guaranteed by Prof. Daniel Kressner (ETH Zürich) and Prof. Zdeněk Strakoš (Charles University, Prague).
- July 2013–September 2013: *Visiting Fellow position* at Departement Elektrotechniek–ESAT, Katholieke Universiteit Leuven, Belgium. Visiting Prof. Sabine Van Huffel and Dr. Diana Maria Sima. Funded by the post-doc project the ESF project N<sub>0</sub> CZ.1.07/2.3.00/30.0065, TU Liberec.
- June 2014–July 2014: *Visiting Fellow position* at DTU Compute – Department of Applied Mathematics and Computer Science, Danmarks Tekniske Universitet, Lyngby, Denmark. Visiting Prof. Per Christian Hansen (and Prof. William Lionheard from University of Manchester). Funded by the post-doc project the ESF project N<sub>0</sub> CZ.1.07/2.3.00/30.0065, TU Liberec.

### SHORT TERM STAYS

- Visiting Prof. Sabine Van Huffel and Dr. Diana Maria Sima, Departement Elektrotechniek–ESAT, Katholieke Universiteit Leuven, Belgium (February 2007).
- Visiting Prof. Per Christian Hansen, Istitut for Informatik og Matematisk Modellering, Danmarks Tekniske Universitet, Lyngby, Denmark (April 2009, June 2010).



## STUDENTS SUPERVISING

### BACHELOR THESES (successfully defended)

- JAROSLAV ŠEVIC: *Golub–Kahan bidiagonalization, its implementation, and numerical experiments* (in Czech: *Golub–Kahanova bidiagonalizace, její implementace a numerické experimenty*), FM, TU Liberec, 2008/09.
- FILIP JÁGR: *The core problem within a linear approximation problem  $Ax \approx b$  with the single right-hand side* (in Czech: *Core problém v lineární aproximační úloze  $Ax \approx b$  s jednou pravou stranou*), FP, TU Liberec, 2013/14–2014/15.

- MARKÉTA HEJLOVÁ: *Google's PageRank: Ranking of web pages and the eigenvalue problems* (in Czech: *Google PageRank: Relevance webových stránek a problém vlastních čísel*), FP, TU Liberec, 2014/15.
- JANA ŽÁKOVÁ: *Tensors and canonic densor decompositions: Tucker decomposition* (in Czech: *Tenzory a kanonické tenzorové rozklady: Tuckerův rozklad*), FP, TU Liberec, 2014/15.  
**AWARDED** the Dean's Prize for the excellent bachelor thesis (2015).
- BARBORA KOŠKOVÁ: *Hierarchical matrices: A contemporary approach for large-scale dense matrices* (in Czech: *Hierarchické matice: Moderní přístup k práci s velkými hustými maticemi*), FP, TU Liberec, 2017/18.
- KATEŘINA STOLÍNOVÁ: *"Batman decomposition" of a symmetric indefinite matrix* (in Czech: *„Batman decomposition“ symetrické indefinitní matice*), FP, TU Liberec, 2017/18.
- MICHAELA KUTSCKEROVÁ: *Algebraic-geometric approach to ruler-and-compass construction of regular polygons* (in Czech: *Algebraicko-geometrická varianta eukleidovské konstrukce pravidelných mnohoúhelníků*) FP, TU Liberec, 2019/20.
- JIŘÍ ŠIKOLA: *Eigenvalue problem and its various generalizations* (in Czech: *Problém vlastních čísel a jeho různázobecnění*) FP, TU Liberec, 2019/20.
- KATEŘINA ČIHÁČKOVÁ: *Nisa mechanical calculator, its history, principles, and applications* (in Czech: *Mechanický kalkulátor Nisa, jeho historie, konstrukce a užití*), FP, TU Liberec, 2019/20.
- JANA MARHANOVÁ: *Primes, their selected properties and applications* (in Czech: *Prvočísla, jejich vybrané vlastnosti a aplikace*), FP, TU Liberec, 2020/21.
- JANA LUNGOVÁ: *Convergence of matrix-oriented Krylov-subspace methods in terms of rank* (in Czech: *Konvergence krylovovských metod pro maticové rovnice z pohledu hodnosti*), FP, TU Liberec, 2022/23.

#### MASTER THESES (successfully defended)

- JANA ŽÁKOVÁ: *Tensor networks and hierarchical Tucker decomposition* (in Czech: *Tenzorové sítě a hierarchický Tuckerův rozklad*), FP, TU Liberec, 2016/17.  
**AWARDED** the Rector's Prize for the excellent master thesis (2017).
- BARBORA KOŠKOVÁ: *Systems of linear equations with hierarchical matrices and solved by decompositions* (in Czech: *Soustavy lineárních rovnic s hierarchickými maticemi řešené pomocí rozkladů*), FP, TU Liberec, 2019/20.

#### DOCTORAL THESES (successfully defended)

- JANA ŽÁKOVÁ: *The Core Problem — Analysis, Properties, and Behaviour*, FP, TU Liberec, 2023.

#### TEACHING EXPERIENCE

##### SPECIAL TUTORIALS

- *Ill-Posed Inverse Problems in Image Processing: Introduction, Structured matrices, Spectral filtering, Regularization, Noise revealing*, Winter School in High-Performance and Parallel Computers, Programming Technologies, and Numerical Linear Algebra, Rožnov pod Radhoštěm, 2011.  
**INVITED** tutorial of three lectures, one presented by I. Hnětynková.
- *On the Way from Matrix to Tensor Computations: Introduction, Basic arithmetics, Tensor decompositions, Hierarchical formats, and Tensor networks*, Winter School on Methods of Numerical Mathematics and Modelling, High-Performance Computing, and Numerical Linear Algebra, Ostrava, 2019.  
**INVITED** tutorial of two lectures.

## LECTURES

- Numerical Methods of Linear Algebra (Numerické metody algebry, NMA, NMAX), master degree course (mandatory, since 2011 optional), lecturer & assistant, FM, TU Liberec, 2006/07–2009/10, 2011/12–2012/13 (spring semester).
- Numerical Methods of Linear Algebra (Numerické metody algebry, NMA), bachelor & master degree course (optional), lecturer & assistant, FP, TU Liberec, 2015/16 (both semesters) 2016/17 (fall semester).
- Implementation of Numerical Methods (Implementace numerických metod, INM), master degree course (mandatory, since 2011 optional), lecturer & assistant, FM, TU Liberec, 2009/10, 2011/12 (fall semester).
- Applications of Numerical Linear Algebra (Aplikace numerické lineární algebry, ANLA), master degree course (optional), lecturer & assistant, FM, TU Liberec, 2009/10 (spring semester).
- Introduction to Linear Algebra (Úvod do lineární algebry, LAG; till 2023/24 Algebra and Geometry 1, Algebra a geometrie 1, AG1, AG1K), bachelor degree course (mandatory), lecturer & assistant, FP, TU Liberec, 2012/13–2019/20 (fall semester).
- Introduction to General Algebra (Úvod do obecné algebry, OAG; till 2018/19 Algebra and Geometry 2, Algebra a geometrie 2, AG2E, AG2K), bachelor degree course (mandatory), lecturer & assistant, FP, TU Liberec, 2012/13–2023/24 (spring semester).
- Modern Methods of Linear Algebra (Moderní metody lineární algebry, MLA, MLAU), bachelor/master degree course (mandatory/optional; depending on the study program), lecturer & assistant, FP, TU Liberec 2016/17–2019/20 (spring semester).
- Mathematical Structures (Matematické struktury, MAS, MASU), bachelor/master degree course (mandatory/optional; depending on the study program), lecturer & assistant, FP, TU Liberec 2017/18–2019/20 (fall semester).

## SEMINARS

- Ph.D. Seminar at NTI (Doktorandský seminář ústavu NTI), doctoral degree course (mandatory), organizer, NTI, FM, TU Liberec, 2005/06–2009/10 (both semesters).
- Inverse Problems in Image Processing (401-3670-60 L/S), bachelor & master degree course/seminar (optional), organizer and lecturer (with Effrosyni Kokiopoulou), SAM, D-MATH, ETH Zürich, 2010/11 (fall semester). Seminar was based on selected chapters from books:
  - HANSEN, NAGY, O'LEARY: *Deblurring Images: Matrices, Spectra, and Filtering*, FA03, SIAM, 2006.
  - HANSEN: *Discrete Inverse Problems: Insight and Algorithms*, FA07, SIAM, 2010.
- Bachelor Thesis Seminar (Výběrový seminář (práce k Bc.), VBS;  $\LaTeX$ ), bachelor degree seminar (optional), KMD, FP, TU Liberec, 2014/15, 2017/18, 2019/20 (spring semester).
- Lectures on Mathematics and Didactics of Mathematics (Seminář z matematiky a didaktiky matematiky, SMDM), optional seminar, KMD, FP, TU Liberec, 2018/19–2019/20 (both semesters).

Seminar is coorganized with several other people and coincides with two department seminars:

- *KO-MIX — Seminar on Mathematics* and
- *Seminar on Didactics of Mathematics*

held on KMD.

- Mathematical Problems of Non-mathematicians (Matematické problémy nematematiků, MNP), optional on-line seminar co-organized together with Czech Technical University (CTU), Charles university and many other Czech universities, KMD, FP, TU Liberec, 2019/20 (both semesters).

Seminar web-sites:

- Main web-site at CTU: <https://www2.karlin.mff.cuni.cz/mffseminar>
- YouTube channel: <https://www.youtube.com/channel/UCoptEFpvC93tZf9NYenqvhg>
- Facebook page: <https://www.facebook.com/MFFSeminar>

## ASSISTANCE ONLY

- Finite Element Method (Metoda konečných prvků, MKP), master degree course (mandatory), assistant (lecturers J. Maryška, Z. Strakoš), FM, TU Liberec, 2004/05–2005/06 (half of fall semester).
- Numerical Methods of Linear Algebra (Numerické metody algebry, NMA), master degree course (mandatory), assistant (lecturer Z. Strakoš), FM, TU Liberec, 2004/05–2005/06 (spring semester).
- Introduction to Linear Algebra and Discrete Mathematics (Úvod do lineární algebry a diskrétní matematiky, ULA), bachelor degree course (mandatory), assistant (lecturer M. Rozložník), FM in cooperation with FP, TU Liberec, 2007/08–2009/10 (fall semester).
- Linear Algebra and Geometry (Lineární algebra a geometrie, LAG), bachelor degree course (mandatory), assistant (lecturer M. Rozložník, since 2011 M. Cvrček), FM in cooperation with FP, TU Liberec, 2007/08–2009/10, 2011/12–2012/13 (fall semester).
- Mathematical Seminar (Matematický seminář, SEM; selected topics from math), bachelor degree course (mandatory), assistant, FM, TU Liberec, 2007/08–2008/09 (spring semester).
- Linear Algebra and Differential Calculus (Lineární algebra a diferenciální počet, LADP), bachelor degree course (mandatory), assistant (lecturer J. Mlýnek), Institute of Health Studies (USZ) in cooperation with FP, TU Liberec, 2011/12 (fall semester).
- Algebra and Geometry 2 (Algebra a geometrie 2, AG2E; general algebra), bachelor degree course (mandatory), assistant (lecturer J. Vild), FP, TU Liberec, 2011/12 (spring semester).
- Mathematics for Sciences (Matematika pro přírodní vědy, MPV; elementar calculus and linear algebra), bachelor degree course (mandatory), assistant (lecturer J. Mlýnek), FP, TU Liberec, 2011/12 (fall semester).
- Mathematics (Matematika, MA\*H; basic calculus and basic linear algebra), bachelor degree course (mandatory), assistant (lecturer D. Bittnerová), Faculty of Economics (EF) in cooperation with FP, TU Liberec, 2015/16 (spring semester).
- Mathematics 1 (Matematika 1, MA1\*H; basic calculus), bachelor degree course (mandatory), assistant (lecturers D. Bittnerová, J. Mlýnek), Faculty of Economics (EF) in cooperation with FP, TU Liberec, 2011/12, 2014/15–2016/17 (fall semester).
- Mathematics 1 (Matematika 1, MA1-M; basic calculus), bachelor degree course (mandatory), assistant (lecturer V. Finěk), FM in cooperation with FP, TU Liberec, 2012/13–2013/14 (fall semester).
- Mathematics 1 (Matematika 3, M1A-P; basic calculus), bachelor degree course (mandatory), assistant (lecturers J. Hozman, P. Salač), FS in cooperation with FP, TU Liberec, 2016/17 (fall semester).
- Mathematics 2 (Matematika 2, MA2\*H; basic linear algebra, calculus of bivariate functions, simple ODEs), bachelor degree course (mandatory), assistant (lecturers D. Bittnerová, J. Mlýnek), EF in cooperation with FP, TU Liberec, 2011/12 (spring semester).
- Mathematics 2A (Matematika 2A, M2A; basic linear algebra (with Matlab)), bachelor degree course (optional), assistant (lecturer M. Cvrček), FM-nano in cooperation with FP, TU Liberec, 2012/13 (spring semester).
- Mathematics 3 (Matematika 3, MA3-P; numerical mathematics (with Matlab)), bachelor degree course (mandatory), assistant (lecturer D. Černá), FS in cooperation with FP, TU Liberec, 2013/14 (fall semester).



## OTHER PROFESSIONAL ACTIVITIES

## LOCAL CO-ORGANIZING OF CONFERENCES

- 7th European Conference on Applications of Polar Dielectrics ECAPD7, Liberec, 2004.
- Computational Methods with Applications, Harrachov, 2007.
- 24th Congress of the Czechoslovak Society for Microbiology, Liberec, 2007.
- Seminar on Numerical Analysis, SNA'08, Liberec (TUL, FM, NTI), 2008.
- Seminar on Numerical Analysis, SNA'12, Liberec (TUL, FP, KMD), 2012.
- International Conf. on Presentation of Mathematics, ICPM'14, Liberec (TUL, FP, KMD), 2014.
- Elementar Mathematics Education — EME 2022, Liberec (TUL, FP, KMD), 2022.

## ORGANIZING OF CONFERENCES AND WORKSHOPS

- SIMONA 2009, Workshop of the Research Centre: Advanced Remediation Technologies and Processes, ARTEC, Liberec, 2009.
- SVOČ 2023, Soutěž vysokoškoláků ve vědecké odborné činnosti v matematice, celorepublikové Česko-Slovenské kolo, Liberec (TUL, FP, KMA), 2023.

## OTHER ACTIVITIES

- *Zentralblatt MATH* reviewer, since February 2009 (Czech editorial unit Prague, and editorial unit Berlin/Karlsruhe).  
<https://zbmath.org>
- Member of *GAMM-ANLA activity group* (Gesellschaft für angewandte Mathematik und Mechanik, Applied and Numerical Linear Algebra), since August 2011.  
<https://gammanla.wordpress.com>
- Member of *The Union of Czech Mathematicians and Physicists* (Jednota českých matematiků a fyziků; (JČMF)), since October 2011.  
<http://www.jcmf.cz>, <http://www.jcmf.cz/?q=en>
- Member of *Czech Mathematical Society (CMS)* (in Czech Česká matematická společnost (ČMS)). Member of the committee of CMS, since February 2018. The second vice-chairman of CMS in 2018–2022.  
<http://jcmf.cz/frontpagecms>
- Member of *EU-Maths-In Czech Network for Mathematics in Industry*, since January 2015.  
<http://eu-maths-in.cz>
- Associate member of *SIAM Chapter* at Charles University in Prague, since July 2016.  
<http://siam.cuni.cz>, <http://siam.cuni.cz/en>
- Member of *European Mathematical Society*, since May 2022.  
<https://euromathsoc.org>





## LIST OF PUBLICATIONS

### SCHOOL RESEARCH PROJECT, DIPLOMA, DOCTORAL AND HABILITATION THESES

- [T1] M. PLEŠINGER: *Simulation of Turonian Aquifer Remediation Process* (in Czech: *Model sanace turonské zvodně*), FM TUL, Liberec, 2003, viii+78 pages. School research (bachelor) project, supervised by J. Novák (in cooperation with the Mathematical Modeling Research Center, DIAMO, state enterprise).
- [T2] M. PLEŠINGER: *Selected Numerical Linear Algebra Problems in Control Theory* (in Czech: *Vybrané problémy numerické lineární algebry v teorii řízení*), FM TUL, Liberec, 2004, 75 pages. Diploma (master) thesis, supervised by Z. Strakoš.
- [T3] M. PLEŠINGER: *The Total Least Squares Problem and Reduction of Data in  $AX \approx B$* , FM TUL, Liberec, 2008, xx+146 pages. Doctoral thesis, supervised by Z. Strakoš.  
**AWARDED** the Jiří Zelenka Prize of Technical University of Liberec for the excellent doctoral thesis (2008).
- [T4] M. PLEŠINGER: *Matrix and Tensor Computations. Analysis and Applications* (in Czech: *Maticové a tenzorové výpočty. Analýza a aplikace*) FEI VŠB–TUO, Liberec, Ostrava, 2016, xiv+199 pages. Habilitation thesis (collection of papers published in years 2009–2016 with Czech commentary).

### BOOKS

- [B1] E. J. DUINTJER TEBBENS, I. HNĚTYNKOVÁ, M. PLEŠINGER, Z. STRAKOŠ, AND P. TICHÝ: *Analysis of methods for matrix computations: Basic methods* (in Czech: *Analýza metod pro maticové výpočty. Základní metody*), Matfyzpress,
  - 1st impression, August 2012, xvi+308 pages;
  - 2nd impression, November 2012, xvi+312 pages.ISBN 978-80-7378-201-6.  
**AWARDED** the Jaroslav Jirsa Prize of Charles University in Prague for the best textbook of the year 2012, in the category Natural Science, Mathematics, and Physics (2013).
- [B2] — ditto —, 2nd modified and extended edition, Matfyzpress, 2023, xvi+310 pages. ISBN 978-80-7378-481-2.  
<https://matfyzpress.cz/cz/e-shop/vsechny-tituly/analyza-metod-pro-maticove-vypocty-zakladni-metody-9788073784812>
- [B3] M. PLEŠINGER: *Lecture notes in linear algebra through the eyes of non-mathematician* (in Czech: *Výpisky z lineární algebry očima nematematika*), Karolinum, 2023, 471 pages. ISBN 978-80-246-4096-9 (print), ISBN 978-80-246-5554-3 (e-book).  
[https://www.cupress.cuni.cz/ink2\\_ext/index.jsp?include=podrobnosti&id=576479](https://www.cupress.cuni.cz/ink2_ext/index.jsp?include=podrobnosti&id=576479)  
[https://www.cupress.cuni.cz/ink2\\_ext/index.jsp?include=podrobnosti&id=577966](https://www.cupress.cuni.cz/ink2_ext/index.jsp?include=podrobnosti&id=577966)

### PAPERS IN JOURNALS

- [J<sub>IMP</sub>1] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *The regularizing effect of the Golub–Kahan iterative bidiagonalization and revealing the noise level in the data*, BIT Numerical Mathematics, Volume 49, Issue 4 (2009), pp. 669–696.  
DOI: [10.1007/s10543-009-0239-7](https://doi.org/10.1007/s10543-009-0239-7)  
<https://link.springer.com/article/10.1007/s10543-009-0239-7>
- [J<sub>IMP</sub>2] I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *The total least squares problem in  $AX \approx B$ : A new classification with the relationship to the classical works*, SIMAX, SIAM J. on Matrix Analysis and Applications, Volume 32, Issue 3 (2011), pp. 748–770.  
DOI: [10.1137/100813348](https://doi.org/10.1137/100813348)  
<https://epubs.siam.org/doi/10.1137/100813348>
- [J<sub>IMP</sub>3] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *The core problem within a linear approximation problems  $AX \approx B$  with multiple right-hand sides*, SIMAX, SIAM J. on Matrix Analysis and Applications, Volume 34, Issue 3 (2013), pp. 917–931.  
DOI: [10.1137/120884237](https://doi.org/10.1137/120884237)  
<https://epubs.siam.org/doi/10.1137/120884237>

- [JIMP4] D. KRESSNER, M. PLEŠINGER, AND C. TOBLER: *A preconditioned low-rank CG method for parameter-dependent Lyapunov matrix equations*, NLA, Numerical Linear Algebra with Applications, Volume 21, Issue 5 (2014), pp. 666–684.  
DOI: [10.1002/nla.1919](https://doi.org/10.1002/nla.1919)  
<https://onlinelibrary.wiley.com/doi/10.1002/nla.1919>
- [JIMP5] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Band generalization of the Golub–Kahan bidiagonalization, generalized Jacobi matrices, and the core problem*, SIMAX, SIAM J. on Matrix Analysis and Applications, Volume 36, Issue 2 (2015), pp. 417–434.  
DOI: [10.1137/140968914](https://doi.org/10.1137/140968914)  
<https://epubs.siam.org/doi/10.1137/140968914>
- [JIMP6] I. HNĚTYNKOVÁ AND M. PLEŠINGER: *Complex wedge-shaped matrices: A generalization of Jacobi matrices*, LAA, Linear Algebra and its Applications, Volume 487 (2015), pp. 203–219.  
DOI: [10.1016/j.laa.2015.09.017](https://doi.org/10.1016/j.laa.2015.09.017)  
<https://www.sciencedirect.com/science/article/pii/S0024379515005327>
- [JIMP7] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND D. M. SIMA: *Solvability of the core problem with multiple right-hand sides in the TLS sense*, SIMAX, SIAM J. on Matrix Analysis and Applications, Volume 37, Issue 3 (2016), pp. 861–876.  
DOI: [10.1137/15M1028339](https://doi.org/10.1137/15M1028339)  
<https://epubs.siam.org/doi/10.1137/15M1028339>
- [JIMP8] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND J. ŽÁKOVÁ: *Filter factors of truncated TLS regularization with multiple observations*, Applications of Mathematics, Volume 62, Issue 2 (2017), pp. 105–120.  
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- [JIMP9] I. HNĚTYNKOVÁ, M. KUBÍNOVÁ, AND M. PLEŠINGER: *Noise representation in residuals of LSQR, LSMR, and CRAIG regularization*, LAA, Linear Algebra and its Applications, Volume 533 (2017), pp. 357–379.  
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<https://www.sciencedirect.com/science/article/pii/S0024379517304512>
- [JIMP10] M. PLEŠINGER AND I. PULTAROVÁ: *On the extreme eigenvalues of certain matrices of non-standard inner products of Hermite polynomials*, LAA, Linear Algebra and its Applications, Volume 546 (2018), pp. 50–66.  
DOI: [10.1016/j.laa.2018.02.003](https://doi.org/10.1016/j.laa.2018.02.003)  
<https://www.sciencedirect.com/science/article/pii/S0024379518300582>
- [JIMP11] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND J. ŽÁKOVÁ: *TLS formulation and core reduction for problems with structured right-hand sides*, LAA, Linear Algebra and its Applications, Volume 555 (2018), pp. 241–265.  
DOI: [10.1016/j.laa.2018.06.016](https://doi.org/10.1016/j.laa.2018.06.016)  
<https://www.sciencedirect.com/science/article/pii/S0024379518303008>
- [JIMP12] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND J. ŽÁKOVÁ: *Solvability classes for core problems in matrix total least squares minimization*, Applications of Mathematics, Volume 64, Issue 2 (2019), pp. 103–128.  
DOI: [10.21136/AM.2019.0252-18](https://doi.org/10.21136/AM.2019.0252-18)  
<https://link.springer.com/article/10.21136/AM.2019.0252-18>
- [JIMP13] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND J. ŽÁKOVÁ: *On TLS formulation and core reduction for data fitting with generalized models*, LAA, Linear Algebra and its Applications, Volume 577 (2019), pp. 1–20.  
DOI: [10.1016/j.laa.2019.04.018](https://doi.org/10.1016/j.laa.2019.04.018)  
<https://www.sciencedirect.com/science/article/pii/S0024379519301703>
- [JIMP14] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND J. ŽÁKOVÁ: *Krylov subspace approach to core problems within multilinear approximation problems: A unifying framework*, SIMAX, SIAM J. on Matrix Analysis and Applications, Volume 44, Issue 1 (2023), pp. 53–79.  
DOI: [10.1137/21M1462155](https://doi.org/10.1137/21M1462155)  
<https://epubs.siam.org/doi/10.1137/21M1462155>

- [JIMP15] P. MÁRTON, M. A. P. GONÇALVES, M. PAŚCIĄK, S. KÖRBEL, V. CHUMCHAL, M. PLEŠINGER, A. KLÍČ, J. HLINKA: *Zigzag charged domain walls in ferroelectric PbTiO<sub>3</sub>*, Physical Review B, Volume 107, Issue 9 (2023), paper id 094102, pp. 1–9.  
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SELECTED PROCEEDINGS CONTRIBUTIONS AND OTHER PAPERS

- [P1] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Lanczos tridiagonalization, Golub–Kahan bidiagonalization and core problem*, PAMM · Proceedings in Applied Mathematics and Mechanics, Volume 6, Issue 1 (2006), pp. 717–718.  
DOI: [10.1002/pamm.200610339](https://doi.org/10.1002/pamm.200610339)  
<https://onlinelibrary.wiley.com/doi/10.1002/pamm.200610339>
- [P2] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *On solution of total least squares problem with multiple right-hand sides*, PAMM · Proceedings in Applied Mathematics and Mechanics, Volume 8, Issue 1 (2008), pp. 10815–10816.  
DOI: [10.1002/pamm.200810815](https://doi.org/10.1002/pamm.200810815)  
<https://onlinelibrary.wiley.com/doi/10.1002/pamm.200810815>
- [P3] I. HNĚTYNKOVÁ, M. KUBÍNOVÁ, AND M. PLEŠINGER: *Notes on performance of bidiagonalization-based noise level estimator in image deblurring*, In proceedings of Algoritmy 2016 conference. Editor A. Handlovičová, Slovak University of Technology in Bratislava, Publishing House of STU, 2016, pp. 333–342.  
<http://www.iam.fmph.uniba.sk/amuc/ojs/index.php/algoritmy/article/view/422>
- [P4] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND J. ŽÁKOVÁ: *Modification of TLS algorithm for solving  $\mathcal{F}_2$  linear data fitting problems*, PAMM · Proceedings in Applied Mathematics and Mechanics, Volume 17, Issue 1 (2017), pp. 749–750.  
DOI: [10.1002/pamm.201710342](https://doi.org/10.1002/pamm.201710342)  
<https://onlinelibrary.wiley.com/doi/10.1002/pamm.201710342>
- [P5] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND J. ŽÁKOVÁ: *Towards tensor generalizations of TLS & core problem theory*, PAMM · Proceedings in Applied Mathematics and Mechanics, Volume 18, Issue 1 (2018), Article e201800196, 2 pages.  
DOI: [10.1002/pamm.201800196](https://doi.org/10.1002/pamm.201800196)  
<https://onlinelibrary.wiley.com/doi/10.1002/pamm.201800196>

OTHER PROCEEDINGS CONTRIBUTIONS

- [POTH1]  
[POTH2]  
[POTH3]  
[POTH4]  
[POTH5]  
[POTH6]



EDITORIAL WORK

- [E1] M. HOKR, M. PLEŠINGER, AND J. ŠEMBERA (Editors): *SiMoNA 2009, Simulation, Modelling, and Miscellaneous Applications* (in Czech, partially in English and Slovak; *Simulace, modelování a nejrůznější aplikace*) TU Liberec, 2009, 196 pages. ISBN 978-80-7372-543-3. Proceedings of SiMoNA 2009 workshop.  
[http://www.fp.tul.cz/~plesinger/my\\_publications/SIMONA\\_2009\\_Proceedings.pdf](http://www.fp.tul.cz/~plesinger/my_publications/SIMONA_2009_Proceedings.pdf)



## TALKS AND OTHER PRESENTATIONS

### INVITED LECTURES & TUTORIALS

- [IL1] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *The regularizing effect of the Golub–Kahan iterative bidiagonalization and revealing the noise in the data*, BIT50 – Trends in Numerical Computing, Lund, Sweden, June 17–20, 2010. Lecture presented by I. Hnětynková.  
**INVITED** lecture at the minisymposium “Inverse Problems” organized by P. C. Hansen.
- [IL2] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Ill-posed inverse problems in image processing: Introduction, structured matrices, spectral filtering, regularization, noise revealing*. Three plenary lectures, one presented by I. Hnětynková.  
**INVITED** tutorial at “Winter School in High-Performance and Parallel Computers, Programming Technologies, and Numerical Linear Algebra” (at SNA ’11), Rožnov pod Radhoštěm, 2011.
- [IL3] I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *The total least squares problem with multiple right-hand sides  $AX \approx B$* , Programs and Algorithms in Numerical Mathematics, PANM 16, Dolní Maxov, June 3–8, 2012.  
**INVITED** plenary lecture at PANM 16 conference.
- [IL4] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Inverse ill-posed problems in image processing: Image deblurring*.  
**INVITED** lecture at “Schola Ludus & Summer School” (Summer School in Physical Biology and Biotechnology), Academic and University Center Nové Hradky & University of South Bohemia, July 1–28, 2012.
- [IL5] M. PLEŠINGER: *On the way from matrix to tensor computations: Introduction, basic arithmetics, tensor decompositions, hierarchical formats, and tensor networks*. Two plenary lectures.  
**INVITED** tutorial at “Winter School on Methods of Numerical Mathematics and Modelling, High-Performance Computing, and Numerical Linear Algebra” (at SNA ’19), Ostrava, 2011.

### INTERNATIONAL CONFERENCES (TALKS AND POSTERS)

- [I1] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Lanczos tridiagonalization and the core problem*, 77th GAMM Annual Meeting, Technische Universität Berlin, Germany, March 27–31, 2006.
- [I2] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Golub–Kahan bidiagonalization and stopping criteria in solving ill-posed problems*, Joint GAMM–SIAM Conf. on Applied Linear Algebra, Düsseldorf, Germany, July 24–27, 2006.
- [I3] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *On core problem formulation in linear approximation problems with multiple right-hand sides*, 4th Int. Workshop on Total Least Squares and Errors-in-Variables Modeling, Arenberg castle, Leuven, Belgium, August 21–23, 2006.
- [I4] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Analysis of the TLS problem with multiple right-hand sides*, 22nd Biennial Conference on Numerical Analysis, University of Dundee, Scotland, UK, June 26–29, 2007.
- [I5] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *On total least squares formulation in linear approximation problems with multiple right-hand sides*, Computational Methods with Applications, Harrachov, Czech Republic, August 19–25, 2007.
- [I6] I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *On total least squares problem with multiple right-hand sides*, IMA Conference on Numerical Linear Algebra and Optimisation, University of Birmingham, UK, September 13–15, 2007.
- [I7] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *On fundamentals of total least squares problems*, 13th Czech–French–German Conference on Optimization Heidelberg, Germany, September 17–21, 2007.
- [I8] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *On total least squares formulation in linear approximation problems with multiple right-hand sides*, Algoritmy 2009, Vysoké Tatry–Podbanské, Slovakia, March 15–20, 2009.

- [I9] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *The total least squares problem and reduction of data*, Modelling 2009, The 4th IMACS Conference on Mathematical Modelling and Computational Methods in Applied Sciences and Engineering, Rožnov pod Radhoštěm, Czech Republic, June 22–26, 2009.
- [I10] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *The total least squares problem and reduction of data*, Enumath 2009–The 8th European Conference on Numerical Mathematics and Advanced Applications, Uppsala, Sweden, June 29–July 3, 2009.
- [I11] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *The regularizing effect of the Golub–Kahan iterative bidiagonalization and revealing the noise in the data*, BIT50–Trends in Numerical Computing, Lund, Sweden, June 17–20, 2010. Lecture presented by I. Hnětynková.  
**INVITED** lecture at the minisymposium “Inverse Problems” organized by P. C. Hansen.
- [I12] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *The total least squares with multiple right-hand sides*, **Householder Symposium XVIII**, Tahoe City, California, June 12–17, 2011.
- [I13] D. KRESSNER, M. PLEŠINGER, C. TOBLER: *Preconditioned low-rank Krylov subspace methods for parameter-dependent Lyapunov equations*, ILAS 2011 conference on “Pure and applied linear algebra: The new generation”, Braunschweig, Germany, August 22–26, 2011.
- [I14] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *The total least squares with multiple right-hand sides*, HPCSE 2013, High Performance Computing in Science and Engineering, Soláň, Czechia, May 27–30, 2013.
- [I15] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *The total least squares with multiple right-hand sides*, PIM 2013, Preconditioning of Iterative Methods, Prague, Czechia, July 1–5, 2013.
- [I16] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *On the fundamentals of the total least squares problems*, EUCO 2013, European Conference on Computational Optimization, Chemnitz, Germany, July 17–19, 2013.
- [I17] I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA: *The core problem within a linear approximation problem with multiple right-hand sides*, **Householder Symposium XIX**, Spa, Belgium, June 8–13, 2014.

LOCAL CONFERENCES (TALKS AND POSTERS)

- [L1] M. PLEŠINGER: *Two topics from theory of linear approximation problems*, XI. PhD. Conference, Moníec–Sedlec–Prčice, September 18–20, 2006.  
**AWARDED** the Prize of Institute of Computer Science, AS CR for the best lecture (2006).
- [L2] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Golub–Kahan iterative bidiagonalization and stopping criteria in ill-posed problems*, SNA '07, Seminar on Numerical Analysis, Ostrava, January 22–26, 2007.
- [L3] I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, AND Z. STRAKOŠ: *Total least squares problem in linear algebraic systems with multiple right-hand side*, SNA '07, Seminar on Numerical Analysis, Ostrava, January 22–26, 2007.
- [L4] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *On total least squares formulation in linear approximation problems with multiple right-hand sides*, SNA '08, Seminar on Numerical Analysis, Liberec, January 28–February 1, 2008.
- [L5] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Golub–Kahan bidiagonalization and revealing the noise level in data*, SNA '09, Seminar on Numerical Analysis, Ostrava, February 2–6, 2009.
- [L6] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Ill-Posed Problems in Image Processing. Image Deblurring*: Seminář: Matematika a statistika na VŠ (with the special occasion of 50th birthday of M. Brzezina), Liberec, November 25, 2011.
- [L7] D. KRESSNER, M. PLEŠINGER, C. TOBLER: *Preconditioned low-rank Krylov subspace methods for parameter-dependent Lyapunov equations*, SNA '12, Seminar on Numerical Analysis, Liberec, January 23–27, 2012.

- [L8] I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *The total least squares problem with multiple right-hand sides  $AX \approx B$* , PANM 16, Programs and Algorithms in Numerical Mathematics, Dolní Maxov, June 3–8, 2012.  
INVITED plenary lecture.
- [L9] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Ill-posed inverse problems in image processing: Image deblurring*, International Conference on Presentation of Mathematics, ICPM '12, Liberec, June 21–22, 2012.
- [L10] Poster: I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA, Z. STRAKOŠ, AND S. VAN HUFFEL: *The core problem within a linear approximation problem with multiple right-hand sides*, SNA '14, Seminar on Numerical Analysis, Nymburk, January 27–31, 2014.
- [L11] I. HNĚTYNKOVÁ, M. PLEŠINGER, D. M. SIMA: *The core problem within a linear approximation problem with multiple right-hand sides*, International Conference on Presentation of Mathematics, ICPM '14, Liberec, September 25–26, 2014.

#### SEMINAR LECTURES

- [S1] M. PLEŠINGER: *Singular value decomposition, application in image deblurring*, Seminar at Faculty of Mechatronics, TU Liberec, December 14, 2005.
- [S2] M. PLEŠINGER: *Core reduction and least squares problems  $Ax \approx b$* , Seminar at Faculty of Mechatronics, TU Liberec, December 21, 2005.
- [S3] M. PLEŠINGER: *Core problem, Golub–Kahan bidiagonalization, Lanczos tridiagonalization*, Seminar at Department of Modelling of Processes, FM, TU Liberec, April 13, 2006.
- [S4] M. PLEŠINGER: *Two topics from theory of linear approximation problems*, Seminar at Faculty of Mechatronics, TU Liberec, November 1, 2006.
- [S5] M. PLEŠINGER: *Reduction of data in  $AX \approx B$* , Seminar at Institute of Computer Science, AS CR, November 14, 2006.
- [S6] M. PLEŠINGER: *Solving total least squares problems with multiple right-hand sides*, Seminar at Institute of Novel Technologies and Applied Informatics, FM, TUL, February 27, 2007.
- [S7] M. PLEŠINGER: *Solving total least squares problems with multiple right-hand sides*, Seminar at Institute of Computer Science, AS CR, March 13, 2007.
- [S8] M. PLEŠINGER: *The total least squares problem and the core problem theory*, Group seminar of the research group of D. Kressner, SAM, ETHZ, December 9, 2010.
- [S9] M. PLEŠINGER, I. HNĚTYNKOVÁ: *Ill-posed inverse problems in image processing* (two lectures), Colloquia of Dept. of Mathematics, West Bohemia University (KMA, FAV, ZČU), Pilsen, April 7 and 14, 2011.
- [S10] M. PLEŠINGER: *The total least squares problem*, Seminar at Dept. of Mathematics and Didactics of Mathematics (KMD), FP, TU Liberec, October 17, 2011.
- [S11] I. HNĚTYNKOVÁ, M. PLEŠINGER, AND Z. STRAKOŠ: *Inverse ill-posed problems in image processing: Image deblurring*, “Schola Ludus & Summer School” (Summer School in Physical Biology and Biotechnology), Academic and University Center Nové Hradky, July 25, 2012.  
INVITED lecture.
- [S12] M. PLEŠINGER: *Inverzní úlohy ve zpracování obrazu: Problém “Image deblurring” (s praktickými ukázkami)*, public lecture devoted to 150th anniversary of JČMF, TU Liberec, December 3, 2012.  
(<http://jcmf.cz/node/432>)
- [S13] M. PLEŠINGER: *Jacobi (tridiagonal) matrices: Their properties and one possible generalization*, Seminar at Dept. of Mathematics and Didactics of Mathematics (KMD), FP, TU Liberec, April 13, 2015.
- [S14] M. PLEŠINGER: *Google matrix a problém relevance webových stránek*, Seminar at Dept. of Mathematics and Didactics of Mathematics (KMD), FP, TU Liberec, November 19, 2018.
- [S15] M. PLEŠINGER: *On the extreme eigenvalues of certain Gram matrices of Hermite polynomials*, Seminar at Dept. of Mathematics and Didactics of Mathematics (KMD), FP, TU Liberec, March 18, 2019.



## AWARDS

- 2006: The lecture [L1] awarded the Prize of Institute of Computer Science, AS CR for the best lecture.
- 2008: Ph.D. thesis [T3] awarded the Jiří Zelenka Prize of Technical University of Liberec for the excellent doctoral thesis.
- 2013: The book [B1] awarded the Jaroslav Jirsa Prize of Charles University in Prague for the best textbook of the year 2012, in the category Natural Science, Mathematics, and Physics.



## REFERENCES

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