

## Curriculum Vitae

### Mrs. Larisa Beilina, Ph.D. in Mathematics

Professor of Applied Mathematics

Department of Mathematical Sciences

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### Academy degree

Professor	2018	University of Gothenburg, Sweden
Associate Professor	2012	University of Gothenburg, Sweden
Docent	2011	University of Gothenburg, Sweden
Ph.D. in Mathematics	2003	Chalmers University of Technology, Sweden
Ph.Lic. in Mathematics	2002	Chalmers University of Technology, Sweden
M.Sc. in Mathematics	1994	University of Latvia, Riga, Latvia
Engineer Diploma in Mathematics	1992	University of Latvia, Riga, Latvia

### Professional appointments

2018 - present	Professor of Applied Mathematics at the Department of Mathematical Sciences, Chalmers University of Technology and University of Gothenburg, Gothenburg, Sweden.
2012 - 2017	Associate Professor, Senior Lecturer at the Department of Mathematical Sciences, Chalmers University of Technology and University of Gothenburg, Gothenburg, Sweden.
2009 -2011	Associate Lecturer at the Department of Mathematical Sciences, Chalmers University of Technology and University of Gothenburg, Gothenburg, Sweden.
2007-2008	PostDoc position at Norwegian University of Science and Technology, NTNU, Trondheim, Norway.
2003 - 2005	PostDoc position at Mathematical Department, Basel University, Switzerland.
2000 - 2003	PhD student at Chalmers University of Technology, Gothenburg, Sweden.
1998 - 1999	Research fellowship (Visby program) at Chalmers University of Technology, Gothenburg, Sweden.
1995 - 1996	Engineer-programmer (first lieutenant) at Informational Center of Ministry of Internal Affairs, Riga, Latvia.

### Career break

- 1996-1997, 2006 Maternity leave

## Experience from the supervision of students

### PhD students

- 2011-2012 Co-adviser of PhD Nikolay Koshev who defended PhD thesis entitled “Methods for spectra and images reconstruction in backscattered electrons regime of scanning electron microscopy” at 05.10.2012, Lomonosov Moscow State University, Russia.
- 2007-2012 Co-adviser of PhD Marte Hatlo-Andresen at NTNU, Trondheim, Norway. She has defended her PhD thesis entitled ”Inverse scattering of two-dimensional photonic structures” at 29.03.2012 at the Department of Mathematics, NTNU, Trondheim.
- 2012 - 2017 Co-adviser of PhD student Christoffer Standar at the Department of Mathematics, CTH/GU (main adviser Professor M. Asadzadeh). C. Standar defended his PhD thesis entitled ”On finite element schemes for Vlasov-Maxwell system and Schrödinger equation” at 15.12.2017.
- 2012-2017 PhD thesis adviser (main supervisor) of John Bondestam-Malmberg at the Department of Mathematics, Chalmers University of Technology and Gothenburg University (CTH/GU). He defended his PhD thesis entitled ”Efficient adaptive algorithms for an electromagnetic coefficient inverse problem” at CTH/GU at 01.09.2017.

### Master and bachelor students

- 2002/2003 Master’s thesis adviser of O. Simdyankina at NADA, KTH, Stockholm, Sweden. She defended Masters’s thesis entitled “Adaptive FEM for an inverse scattering problem with Dirichlet boundary conditions” in 2003, KTH, Stockholm.
- 2014/2015 Master’s thesis adviser of S. Hosseinzadegan. She defended Master’s thesis entitled ”Iteratively regularized adaptive finite element method for reconstruction of coefficients in Maxwell’s system” in June 2015 at the Department of Mathematics at CTH, Gothenburg.
- 2015/2016 Master’s thesis adviser of C. Persson. He defended Master’s thesis entitled ” Iteratively regularized finite element method for conductivity reconstruction in a waveguide” in May 2016 at the Department of Mathematics at CTH, Gothenburg.
- 2016/2017 Master’s thesis adviser of M. Eriksson. He defended Master’s thesis entitled ”Parameter identification in a mathematical model of HIV infection with drug therapy” in September 2017 at the Department of Mathematics at CTH, Gothenburg.
- 2015/2016 Adviser of Henrik Eklund, Jonas Jagers and Olle Wickius for bachelor’ thesis entitled “Investigation of the solution of linear least squares problems’.

### Teaching activities

All teaching activities together with links to the course pages are described at the link <http://www.math.chalmers.se/~larisa/teaching>

- Fall semester 2011, Graduate course at the Department of Mathematical Sciences “Electromagnetic Fields and Waves: mathematical models and numerical methods”, 7.5 Hp (together with

prof. Y. Shestopalov).

Course link:

<https://sites.google.com/site/visby2010/course-at-department-of-mathematical-sciences-chalmers-university-of-technology-and-gothenburg-university-sweden>

- Fall semester 2009, Graduate course at the Department of Mathematical Sciences at Chalmers/GU "Numerical methods for solutions of Coefficient Inverse Problems", 7.5 Hp.
- Spring semester 2009, regular course at the Department of Mathematical Sciences at Chalmers/GU MVE255 "Matematisk Analys i Flera Variabler", M(TD).
- HT2012 - HT2018, regular course at the graduate program at the Department of Mathematical Sciences at Chalmers/GU "Numerical Linear Algebra" TMA265/MMA600, 7.5 Hp.
- HT 2015, graduate course at the Department of Mathematical Sciences at Chalmers/GU "High performance scientific computing for PDE", 7.5 Hp.
- VT 2016 regular course at the graduate program at the Department of Mathematical Sciences at Chalmers/GU "Large and sparse matrix problems" TMA891/MMA610, 7.5 Hp.
- VT 2016 - VT2018 regular course at the Department of Mathematical Sciences at Chalmers/GU "Numerisk Analys" MMG410, 7.5 Hp.

### Funding ID

- "*Sabbatical Programme for researchers and teaching staff at the Faculty of Science, GU*", grant for research collaboration with Aix-Marseille University and Institut Fresnel, France, (400 000 SEK), 2015.
- "*Non-parametric optimization algorithms for nanophotonics simulations*", Project grant from the Area of Advance of Nanoscience and Nanotechnology (AoA Nano) at CTH (together with P. Tassin, Department of Applied Physics at Chalmers University of Technology), (450 000 SEK), 2015-2016.
- "*Global convergence and adaptivity for coefficient inverse problems for Maxwell equations*", Project grant, the Swedish Research Council (VR), Sweden ( 2 950 000 SEK  $\approx$  328 000 EUR ), 2012-2015.
- *Project "Adaptive finite element methods for solutions of inverse problems"*, Project grant, the Swedish Institute, Visby Program, (1 188 800 SEK  $\approx$  132 000 EUR), 2010-2013.

Project cite:

<https://sites.google.com/site/visby2010/>

### **Scientific activities, participation in research projects and international collaboration:**

- 2003-2005 Project "New numerical methods for Maxwell's equations", The University of Basel, Switzerland, under the leadership of Prof. Marcus Grote. I worked on the hybrid interior penalty Discontinuous Galerkin FEM/FDM method for solution of Maxwell equations.
- 2003-2005 Project "Quantitative sonographic imaging of human hard tissue by mathematical modelling in scanning acoustic microscopy". This was a collaborative project with The Medical Center of The Frankfurt University (Prof. Dr. Robert Sader), The Institute for Applied Mathematics of the University of Basel (Prof. Marcus Grote), and The Institute of Experimental Surgery and Hospital Management, University Hospital Basel (Prof. Michael Heberer). I have applied the method which I have developed in my Ph.D. Thesis to reconstruct the elastic medium in scanning acoustic microscopy.
- 2007-2008 Project "Information and Communication Technologies" at Norwegian University of Science and Technology, NTNU, in collaboration with the project leader Prof. Harald Krogstad. I worked on the application of an adaptive FEM for an inverse electromagnetic scattering problem.
- 2007-2008 The Notur project of High Performance Computing (HPC) at Norwegian University of Science and Technology, NTNU. I have developed the C++ software in a parallel infrastructure for numerical solutions of some hyperbolic equations with variable coefficients as well as for corresponding MCIPs.
- 2007- 2011 Project "Globally convergent numerical methods for Multidimensional Coefficient Inverse Problems". This Project was supported by the Army Research Office (ARO) grant W911NF-08-1-0470. PI of the Project was Prof. Michael V. Klibanov, University of North Carolina at Charlotte, USA.
- 2010-2013 Project "Adaptive finite element methods for solutions of inverse problems" supported by the Swedish Institute, Visby Program. This is the collaborative project between Sweden and Russia. I'm PI of this project. Project includes development of new mathematical idea - adaptivity technique - to the solution of coefficient inverse problems in imaging using electromagnetic waves as well as in signal reconstruction in scanning electron tomography.
- 2011 - 2014 Project "Globally Convergent Numerical Methods for Inverse Problems of Imaging of Buried Targets". This is a collaborative project with the PI of the project Prof. Michael V. Klibanov, University of North Carolina at Charlotte, USA, and Prof. Michael Fiddy, Optical Center of the University of North Carolina at Charlotte, USA. This project is supported by the USA Army Research Laboratory grant W911NF-11-1-0399.
- 2012-2015 PI of the Project "Global convergence and adaptivity for coefficient inverse problems for Maxwell equations" supported by the Swedish Research Council (VR), Sweden.
- 2011-present I'm head of the scientific computing project WaveES, see project page <http://waves24.com/>.

### **Academic activities**

- Member of Editorial Board of Eurasian Journal of Mathematical and Computer Applications (EJMCA).

- Organizer of three conferences within the Visby Project “Adaptive finite element methods for solution of inverse problems”, <https://sites.google.com/site/visby2010/conferences>
- Member of the international organizing committee on the conferences: “Inverse Problems: Modeling and Simulation”, Antalya, Turkey, 2010, ”International workshop on Inverse and Ill-posed problems”, Moscow State University, Russia, 2015; Quantum Algebras, Quantum Integrable Models and Quantum Information (QQQ2016), the Sven Lovn Centre for Marine Sciences, Sweden, July 2016.
- Organizer of the minisymposium ”Recent advances in numerical methods for inverse problems resolution” on the International Conference of Numerical Analysis and Applied Mathematics (ICNAAM2010), Rhodes, Greece, 2010.
- Organizer of the minisymposium ”Recent progress in electromagnetic field theory and new trends in inverse problems” on the International Conference of Numerical Analysis and Applied Mathematics (ICNAAM2016), Rhodes, Greece, 2016.
- Organizer of session ”Nonlinear and Inverse Problems in Electromagnetics” on PIERS2017 (Progress In Electromagnetics Research Symposium, St.Petersburg, Russia, 22-25 May 2017).
- Reviewer in J. *Communications in Mathematical Sciences (CMS)*, *Inverse problems*, *Inverse Problems in Science and Engineering*, *Inverse and Ill-posed problems*, *SIAM SciComp*, *International Journal of non-linear Mechanics*, Elsevier, CAM, Elsevier, APNUM, Elsevier, TWMS *Journal of Pure and Applied Mathematics*. Reviewer of the book ”*Introduction to Iterative Methods for Ill-Posed Problems*” by Anatoly Bakushinsky, Mikhail Kokurin, Alexandra Smirnova, de Gruyter, 2010, and “*Handbook of Mathematical Methods in Imaging*”, Springer, 2010.
- Editor of the conference proceedings *Applied Inverse Problems*, Series: Springer Proceedings in Mathematics Statistics, Vol. 48, DOI 10.1007/978-1-4614-7816-4, 2013, and *Inverse Problems and Large-Scale Computations*, Series: Springer Proceedings in Mathematics Statistics, Vol. 52, DOI: 10.1007/978-3-319-00660-4, 2013.
- Expert in the evaluation of Research Proposals in Foundation Flanders (FWO), Belgium, Panel “Mathematical Sciences”.
- Examiner of diverse Master’s works in the period 2009-2016 of Dan Dolonius, Ajeeb Ur Rehman, Mohammad Naseer, Samar Hosseinzadegan, Carl Persson at the Department of Mathematical Sciences at CTH, Gothenburg.
- Opponent (Diskussionsledare) for Filosofie licentiatseminarium of Elin Solberg, April 2015.
- Member of the examining committee (Ledamöt i betygsnämnd) for Filosofie doktorsexamen of Siyang Wang, June 2017, TDB, Uppsala University, Sweden.
- Member of the examining committee (Ledamöt i betygsnämnd) for doktorsexamen in electrical engineering of Pegah Takook, Department of Electrical Engineering, Chalmers University of Technology, March 2018.

## Early achievements track-record

In 2000-2003 I have developed an adaptive finite element/finite difference method for solution of multi-dimensional coefficient inverse problems (MCIPs) for time-dependent acoustic and elastic wave equations. This method has formed the basis of my Ph.D. thesis. In 2005-2007 I have elaborated an adaptive finite element method for the solution of MCIPs for time-dependent Maxwell equations using a stabilized Domain Decomposition Finite Element/Finite Difference method. In 2007-2012 I have developed a radically new approximate globally convergent numerical method for the solution of MCIPs with combination of an adaptive finite element method. Paper *L. Beilina, M.V. Klibanov, Reconstruction of dielectrics from experimental data via a hybrid globally convergent/adaptive inverse algorithm*, *Inverse Problems* 26 (12), 125009, 2010 became a featured article in *J.Inverse Problems* in 2010. The work on new approximate globally convergent method in combination with an adaptive finite element method is summarized in the recent book [BOOKS, [1]].

I have published more than 60 papers in peer-reviewed journals and peer-reviewed conference proceedings, as well as 2 monographs *Approximate global convergence and adaptivity for coefficient inverse problems*, Springer, New York, 2012, and *Numerical Linear Algebra: theory and applications*, Springer, 2017, and edited 3 conference proceedings [BOOKS, [2,3,4]].

## Selected 10 papers in peer-reviewed journals

1. **L. Beilina**, M. Cristofol, S. Li, Determining the conductivity for a nonautonomous hyperbolic operator in a cylindrical domain, *Math. Meth. Appl. Sci.*, 2018;119, DOI: 10.1002/mma.4728
2. **L. Beilina**, M. Cristofol, S. Li, M. Yamamoto, Lipschitz stability for an inverse hyperbolic problem of determining two coefficients by a finite number of observations, *Inverse Problems*, 34, 015001, 2018.
3. **L. Beilina**, M.V. Klibanov, A globally convergent numerical method for a coefficient inverse problem *SIAM Journal on Scientific Computing* 31 (1), 478-509, 2008.
4. **L. Beilina**, C. Johnson, A posteriori error estimation in computational inverse scattering, *Mathematical models and methods in applied sciences*, 15 (01), 23-35, 2005.
5. **L. Beilina**, M. V. Klibanov, M. Y. Kokurin, Adaptivity with relaxation for ill-posed problems and global convergence for a coefficient inverse problem, *Journal of Mathematical Sciences*, 167 (3), 279-325, 2010.
6. **L. Beilina**, Nguyen Trung Thành, M. V. Klibanov and J. B. Malmberg, Reconstruction of shapes and refractive indices from backscattering experimental data using the adaptivity, *Inverse Problems*, 30, 105007, 2014.
7. **L. Beilina**, C. Clason, An adaptive hybrid fem/fdm method for an inverse scattering problem in scanning acoustic microscopy, *SIAM Journal on Scientific Computing*, 28 (1), 382, 2007.
8. **L. Beilina**, Energy estimates and numerical verification of the stabilized Domain Decomposition Finite Element/Finite Difference approach for time-dependent Maxwells system, *Central European Journal of Mathematics*, 11 (4), 702-733, 2013.
9. **L. Beilina**, Domain decomposition finite element/finite difference method for the conductivity reconstruction in a hyperbolic equation, *Communications in Nonlinear Science and Numerical Simulation*, 37, 2016, 222-237.
10. N. Koshev and **L. Beilina**, An Adaptive Finite Element Method for Fredholm Integral Equations of the first kind and its verification on experimental data, *CEJM*, 11(8), 1489-1509, 2013.

## Books

1. **L. Beilina**, E. Karchevskii, M. Karchevskii, *Numerical Linear Algebra: theory and applications*, Springer, 2017.
2. **L. Beilina**, M.V. Klibanov, *Approximate global convergence and adaptivity for coefficient inverse problems*, Springer, New-York, 2012.
3. **L. Beilina** (Ed.), *Applied Inverse Problems*, Series: Springer Proceedings in Mathematics Statistics, Vol. 48, DOI 10.1007/978-1-4614-7816-4, 2013.
4. **L. Beilina**, Shestopalov, Yury V. (Eds.), *Inverse Problems and Large-Scale Computations*, Series: Springer Proceedings in Mathematics Statistics, Vol. 52, DOI: 10.1007/978-3-319-00660-4, 2013.
5. **L. Beilina** (Ed.), *Inverse Problems and Applications*, Series: Springer Proceedings in Mathematics Statistics, Vol. 120, ISBN 978-3-319-12498-8, 2015.

## Conference presentations (invited and plenary speaker)

1. Presentation “Computational design of acoustic materials using an adaptive optimization algorithm”, CAM seminar, Chalmers University of Technology, Sweden, 21 February 2018.
2. Presentation “Adaptive finite element method for identification of isotropic coefficients in Maxwell’s equations”, TDB, Uppsala University, 14 February 2018.
3. Presentation “High performance numerical methods for electromagnetic inverse problems”, IR4M CNRS UMR8081 at Paris-Syd University, Orsay, 15 January 2018.
4. Presentation “New global optimization approach for the solution of hyperbolic coefficient inverse problem”, Institut Mittag-Leffler, Stockholm, 29 May, 2017.
5. Presentation “Adaptive optimization algorithm for the computational design of nanophotonic structures” at ICEAA 2016, Australia, 2016.
6. Presentation “Quantitative imaging technique using the layer-stripping algorithm” at ICNAAM2016, Greece, 2016.
7. Invited speaker at Aix-Marseille University, France, June 2016. Presentation entitled “Optimization approach in the computational design of nanophotonic structures”.
8. Invited speaker on the conference “Applications of mathematics” in honor of the 90-th birthday of Ivo Babuška, November 18-21, 2015, Prague, Czech Republic. Presentation entitled “Iteratively regularized adaptive finite element method in the reconstruction of coefficients in Maxwell equations”.
9. Invited speaker on the colloquium at FRUMAM, Aix-Marseille University - Site St Charles, France, June 2015. Presentation entitled “Quantitative imaging technique using an adaptive finite element method”.
10. Invited speaker at the Brown Bag Seminar, Department of Applied Mechanics, Chalmers University of Technology. Presentation entitled “Adaptive finite element method in shape reconstruction of objects from backscattered experimental data”, 20 February 2015.
11. Plenary speaker on the 6-th International Conference on Advanced COmputational Methods in ENgineering (ACOMEN2014), Ghent, Belgium, 23-28 June 2014.
12. Invited speaker at the Brown Bag Seminar, Department of Applied Mechanics, Chalmers University of Technology, Brown Bag Seminar, “Quantitative reconstruction methods from experimental data”, 5 June 2014.

13. Invited speaker on the conference *Recent progress for mathematical and numerical analysis of inverse problems* in CIRM, Marseille, France, 19-23 May 2014. Presentation entitled “Approximate globally convergent method and adaptive finite element methods in imaging of targets from experimental data”.
14. Third annual workshop on Inverse Problems within the Visby Program, Stockholm, 2-6 May 2013. Presentation entitled “Experimental verification of an approximately globally convergent method in pico-second scale regime.”
15. Invited speaker on the conference “Inverse Problems and Nonlinear Equations” at CMAP, Ecole Polytechnique (Palaiseau), France, 22-24 May, 2013. Presentation entitled “Quantitative imaging technique using an approximately globally convergent method”.
16. Colloquium talk at Georgia Institute of Technology, January 2013, Atlanta, Georgia, USA (contributed).
17. Faculty of Technology and Science, Department of Mathematics, Karlstadt University, 5.11.2012. Presentation entitled “Approximate Global Convergence and Adaptivity in imaging of land mines”.
18. Second annual workshop on Inverse Problems within the Visby Program, Sunne, 2-6 May 2012. Presentation entitled “Approximate global convergence in imaging of land mines from backscattered data”.
19. Department of Mathematics, KTH, Stockholm, seminar “Spectral Theory” at 24.11.2011. Presentation entitled “Approximate global convergence and adaptive finite element method for coefficient inverse problems with experimental data”.
20. 2011-09-27 - 2011-09-29 Conference “Inverse Problems and Applications” at CMAP, Ecole Polytechnique (Palaiseau), France. Presentation entitled “Approximate globally convergent numerical method and adaptivity technique for inverse problems with experimental data”.
21. First annual workshop on Inverse Problems within the Visby Program, Department of Mathematical Sciences, Chalmers University of Technology and Gothenburg University, 2-3 June 2011. Presentation entitled “Adaptive Finite Element Method for a Coefficient Inverse Problem for the Maxwell’s system”.
22. Mini-workshop on Inverse Problems at Moscow State University, Moscow, Russia, 27.04.2011. Presentation entitled “Approximate global convergence and adaptivity for solutions of inverse problems”.
23. Presentation at University Paris 6 at d’Alembert general seminar in Paris, France, on 10 February 2011.
24. Presentation at Mathematical Department in Basel University, November 2010.
25. Presentation at CAM seminar, Chalmers University of Technology, Sweden, November 2010.
26. Presentation at AGMP2010, T järnö, Sweden, November 2010.
27. 8th International Conference of Numerical Analysis and Applied Mathematics ICNAAM2010, Rhodes, Greece, 2010.
28. Conference “Inverse Problems”, organized by University Cergy-Pontoise, France, October 2009.
29. Conference “Control and Inverse Problems in PDE : Theoretical and numerical aspects”, Organized by The International Center for Mathematical Meetings, Marseille, France, February 2009.
30. Special Semester on Computational Methods for Inverse Problems - Theory and Practice, Johan Radon Institute for Computational and Applied Mathematics (RICAM), Linz, Austria, April 2009.
31. Conference on Applied Inverse Problems, University of Vienna, organized by Johan Radon Institute for Computational and Applied Mathematics (RICAM), Linz, Austria, July 2009. Invited



speaker at the minisymposium “Carleman estimates: theory and numerical methods for inverse problems”.

32. Special Semester on Quantitative Biology Analyzed by Mathematical Methods, at Johan Radon Institute for Computational and Applied Mathematics (RICAM), Linz, Austria, 2008.
33. Special Semester on Quantitative Biology Analyzed by Mathematical Methods, at Johan Radon Institute for Computational and Applied Mathematics (RICAM), Linz, Austria, 2007. Title: “Adaptive finite element method in reconstruction of an symmetric structure”.
34. European Community on Computational Methods in Applied Sciences (ECCOMAS): thematic conference COMPDYN 2007 “Computational methods in Structural Dynamic and Earthquake Engineering”, 13-16 June 2007, Rethymno, Crete, Greece. I was invited on the minisymposium “Computational Methods for Inverse Scattering”.
35. IEEE ISBI2007 (International Symposium on Biomedical Imaging), April 12-15, 2007, Metro Washington, D.C.,USA. I was invited on the special session “Adaptive mesh refinement techniques in biomedical imaging”.
36. MAGIC (Manifolds and Geometric Integration Colloquia), Atnasjøen, Norway, 2007.
37. The Second International Conference on Inverse Problems, Turkey, Fethiye, 2004.
38. The First International Conference on Inverse Problems, Fethiye, Turkey, 2002.
39. Workshop on Optimization in Heidelberg, University of Heidelberg, Germany, 2002.
40. International Conference on Finite Element Methods: three dimensional problems, University of Jyväskylä, Finland, 2001.
41. ENUMATH 2001 (European Conference on Numerical Mathematics and Advanced Applications), Ischia, Italy, 2001.
42. Nordic computational differential equations circus, Tampere University, Finland, 2001.
43. The Finite Element Center day at Chalmers, Chalmers University, Göteborg, Sweden, 2001.
44. Nordic computational differential equations circus, Bergen University, Bergen, Norway, 2000.

## Awards

- Laureate in the mobility program FRÖ 2018 supported by the French Institute in Sweden for the collaborative work with University Paris 6 and University Paris-Sud.
- Grant from the Faculty of Science, GU, for the Sabbatical at Aix-Marseille University and Institut Fresnel, France, 2015.
- Recognized reviewer of Elsevier Journals “Applied Numerical Mathematics”, “Computers and Mathematics with Applications” in 2015.
- Award from the Area of Advance of Nanoscience and Nanotechnology (AoA Nano) at CTH (together with P. Tassin) for the project “*Non-parametric optimization algorithms for nanophotonics simulations*”, 2015.
- Appointment at Institute Mittag-Leffler in the Spring semester 2013 (January 14 - May 15) “Inverse Problems and Applications”.
- Grant “Global convergence and adaptivity for coefficient inverse problems for Maxwell equations” supported by the Swedish Research Council (VR), Sweden, 2011-2015.
- The Visby Program Award from the Swedish Institute in 2010-2013.
- The best publication Award of The Institute of Mathematics of the Academy of Sciences of the Czech Republic, 2005

- The Visby Program Award from the Swedish Institute. Individual Scholarship at the Department of Mathematics, Chalmers University of Technology, supported by the Swedish Institute, 1998-1999.
- DAAD (German Academic Exchange Service) award, Rostock University, Germany, 1993.

### **Open-access computer programs**

Software package **WavES** for the numerical solution of different types of time-dependent wave equations (acoustic, elastic and electromagnetic).

Project cite: <http://waves24.com/>

### **Popular science articles/presentations**

L. Beilina, Solving the unsolvable, International Innovation, March 2013, (Research Media, UK, pp.112-114) ISSN 2041-4552.

### **Patent**

*System and Method for Multiphase Flow Measurements,*

Patent No.:108. (WO2015121365)

International Application No.: PCT/EP2015/053002.

Inventors: Eriksson, Anders; (SE)

Beilina, Larisa; (SE).