

Reports of the Department of Mathematical Information Technology
Series B. Scientific Computing
No. B 8/2016

Scientific Publications of Pekka Neittaanmäki
1978—2016: Subject Classification

Henri Mäkelä and Eeva Pöykkö (eds.)

University of Jyväskylä
Department of Mathematical Information Technology
P.O. Box 35 (Agora)
FI-40014 University of Jyväskylä
FINLAND
fax +358 14 260 2771
www.mit.jyu.fi

Copyright © 2016
Henri Mäkelä and Eeva Pöykkö
and University of Jyväskylä

ISBN 978-951-39-6722-2
ISSN 1456-436X

Scientific Publications of Pekka Neittaanmäki 1978—2016: Subject Classification

Abstract

In this report scientific articles of Pekka Neittaanmäki published 1978—2016 are listed according to Mathematics Subject Classification¹.

Contents

1	Partial differential equations	2
2	Calculus of variation and optical control; optimization	10
3	Numerical analysis.....	20
4	Computer science	44
5	Mechanics of deformable solids	46
6	Fluid mechanics	52
7	Optics, electromagnetic theory	52
8	Classical thermodynamics, heat transfer	55
9	Quantum theory	58
10	Operation research, mathematical programming	59
11	Game theory, economics, social and behavioral sciences	60
12	Information and communication, circuits	61
13	Mathematics education.....	63

¹ www.ams.org/msc/conv.html?from=2010

1 Partial differential equations

1.1 Books

1. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape design: Theory and applications. J. Wiley & Sons, Chichester, 1988.
2. M. Křížek and P. Neittaanmäki. Finite element approximation of variational problems and applications, volume 50 of Pitman Monographs and Surveys in Pure and Applied Mathematics. Longman Scientific & Technical, Harlow; Copubl. J. Wiley & Sons, New York, 1990.
3. P. Neittaanmäki and D. Tiba. Optimal control of nonlinear parabolic systems: Theory, algorithms and applications. Marcel Dekker, New York, 1994.
4. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape, material and topology design. J. Wiley & Sons, Chichester, 2nd edition, 1996.
5. M. Křížek and P. Neittaanmäki. Mathematical and numerical modelling in electrical engineering: Theory and applications. Kluwer Academic Publishers, Dordrecht, 1996. With a foreword by I. Babuška.
6. V. Arnăutu and P. Neittaanmäki. Optimal control from theory to computer programs. Kluwer, Dordrecht, 2003.
7. P. Neittaanmäki and S. Repin. Reliable methods for computer simulation: Error control and a posteriori estimates, volume 33 of Studies in Mathematics and Its Applications. Elsevier Science, Amsterdam, 2004.
8. P. Neittaanmäki, J. Sprekels, and D. Tiba. Optimization of elliptic systems: Theory and applications. Springer, Berlin, 2006.
9. A. Kravchuk and P. Neittaanmäki. Variational and quasi-variational inequalities in mechanics. Springer, Berlin, 2007.
10. O. Mali, P. Neittaanmäki, and S. Repin. Accuracy verification methods: Theory and algorithms, volume 32 of Computational Methods in Applied Sciences. Springer, Berlin, 2014.
11. N. Banichuk, J. Jeronen, P. Neittaanmäki, T. Saksa, and T. Tuovinen. Mechanics of moving materials, volume 207 of Solid Mechanics and Its Applications. Springer, Berlin, 2014.

12. L. Baskin, P. Neittaanmäki, B. A. Plamenevskii, and O. Sarafanov. Resonant tunneling: Quantum waveguides of variable cross-section, asymptotics, numerics, and applications. Springer, Cham, 2015.

1.2 Edited books

1. P. Neittaanmäki, editor. Numerical methods for free boundary problems (Jyväskylä, 1990), number 99 in International Series of Numerical Mathematics, Basel, 1991. Birkhäuser.
2. P. Neittaanmäki and V. Rivkind, editors. Jyväskylä–St. Petersburg Seminar on Partial Differential Equations and Numerical Methods (Jyväskylä, 1993), number 56 in Ber. Univ. Jyväskylä Math. Inst., 1993.
3. P. Neittaanmäki and L. Rivkind, editors. Analysis and approximation of boundary value problems. A memorial meeting dedicated to Prof. Valery Rivkind, number B8/2000 in Reports of the Department of Mathematical Information Technology, Series B, Scientific Computing. University of Jyväskylä, 2000.
4. G. C. Cohen, E. Heikkola, P. Joly, and P. Neittaanmäki, editors. Mathematical and Numerical Aspects of Wave Propagation (WAVES 2003, Jyväskylä), Berlin, 2003. Springer.
5. P. Neittaanmäki, T. Rossi, K. Majava, and O. Pironneau, editors. Proc. of the 4th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä), Vol I. University of Jyväskylä, 2004. CD-ROM.
6. R. Glowinski and P. Neittaanmäki, editors. Partial differential equations: Modelling and numerical simulation, number 16 in Computational Methods in Applied Sciences, Berlin, 2008. Springer.
7. W. Fitzgibbon, Yu. Kuznetsov, P. Neittaanmäki, J. Périaux, and O. Pironneau, editors. Applied and numerical partial differential equations: Scientific computing in simulation, optimization and control in a multidisciplinary context, volume 15 of Computational Methods in Applied Sciences, Berlin, 2010. Springer.

1.3 Journal articles

1. P. Neittaanmäki. Dirichletsche und Neumannsche Randwertaufgaben in der statischen Elastizitätstheorie. Ann. Acad. Sci. Fenn. Ser. A I Math., 5:227–236, 1980. MR 82m:35044.

2. P. Neittaanmäki. Über die Nichtexistenz der Eigenwerte des Laplace-Operators in einigen unbeschränkten Gebieten. *Z. Angew. Math. Mech.*, 62:T295–T297, 1982.
3. J. Haslinger and P. Neittaanmäki. On the existence of optimal shapes in contact problems. *Numer. Funct. Anal. Optim.*, 7(2–3):107–124, 1984/85.
4. M. Křížek and P. Neittaanmäki. On the validity of Friedrichs' inequalities. *Math. Scand.*, 54:17–26, 1984.
5. J. Haslinger and P. Neittaanmäki. Optimal shape design of systems governed by some boundary value problems. *Z. Angew. Math. Mech.*, 64:T279–T281, 1984.
6. M. Křížek and P. Neittaanmäki. Solvability of a first order system in three-dimensional non-smooth domains. *Appl. Mat.*, 30:307–315, 1985.
7. P. Neittaanmäki and T. Tiihonen. Sensitivity analysis for a class of shape control problems. *Z. Angew. Math. Mech.*, 65:T317–T319, 1985.
8. P. Neittaanmäki and G. F. Roach. Weighted Sobolev spaces and exterior problems for the Helmholtz equation. *Proc. Roy. Soc. London Ser. A*, 410(1839):373–383, 1987.
9. P. Neittaanmäki and K. Saarinen. Multigrid approach for molecular calculations. *Z. Angew. Math. Mech.*, 67:T436–T437, 1987.
10. J. Nečas, A. Lehtonen, and P. Neittaanmäki. On the construction of Lusternik–Schnirelmann critical values with application to bifurcation problems. *Appl. Anal.*, 25(4):253–268, 1987.
11. P. Neittaanmäki, J. Sokołowski, and J. P. Zolésio. Optimization of the domain in elliptic variational inequalities. *Appl. Math. Optim.*, 18:85–98, 1988.
12. C. A. Marinov and P. Neittaanmäki. A theory of electrical circuits with resistively coupled distributed structures: Delay time predicting. *IEEE Circuits Systems*, 35:173–183, 1988.
13. C. Marinov and P. Neittaanmäki. Global delay time for general distributed networks with applications to timing analysis of digital MOS integrated circuits. *COMPEL*, 8:17–37, 1989.
14. C. A. Marinov and P. Neittaanmäki. Asymptotical convergence evaluation for a parabolic problem arising in circuit theory. *Z. Angew. Math. Mech.*, 70:344–347, 1990.

15. C. A. Marinov and P. Neittaanmäki. A delay time bound for distributed parameter circuits with bipolar transistors. *Internat. J. Circuit Theory Appl.*, 18:99–106, 1990.
16. G. Moroşanu, C. Marinov, and P. Neittaanmäki. Well-posed nonlinear problems in integrated circuits modeling. *Circuits Systems Signal Process.*, 10:53–69, 1991.
17. P. Neittaanmäki, V. Rivkind, and G. Seregin. About optimal shape design in fluid dynamics. *J. Optimal Control. Appl. Methods*, 16:143–148, 1995.
18. P. Neittaanmäki and D. Tiba. An embedding of domains approach in free boundary problems and optimal design. *SIAM J. Control Optim.*, 33(5):1587–1602, 1995.
19. P. Neittaanmäki, V. Rivkind, and G. Seregin. A dual finite element approach for stresses of elasto-perfectly plastic bodies. *Math. Comp.*, 64(212):1455–1462, 1995.
20. A. Yu. Kokotov, P. Neittaanmäki, and B. A. Plamenevskii. The Neumann problem for the wave equation in a cone. *Function theory and applications. J. Math. Sci. (New York)*, 102(5):4400–4428, 2000.
21. W. Liu, P. Neittaanmäki, and D. Tiba. Sur les problèmes d’optimisation structurelle. *C. R. Acad. Sci. Paris Sér. I Math.*, 331(1):101–106, 2000.
22. V. E. Grikurov, M. A. Lyalinov, P. Neittaanmäki, and B. A. Plamenevskii. On surface waves in diffraction gratings. *Math. Methods Appl. Sci.*, 23(17):1513–1535, 2000.
23. A. Yu. Kokotov, P. Neittaanmäki, and B. A. Plamenevskii. On the Neumann problem for hyperbolic systems in a wedge. *Dokl. Akad. Nauk*, 383(5):608–611, 2002. (In Russian).
24. V. E. Grikurov, E. Heikkola, P. Neittaanmäki, and B. A. Plamenevskii. On a method for searching for surface waves in diffraction gratings. *Dokl. Akad. Nauk*, 385(4):465–469, 2002. (In Russian).
25. W. B. Liu, P. Neittaanmäki, and D. Tiba. Existence for shape optimization problems in arbitrary dimension. *SIAM J. Control Optim.*, 41:1440–1454, 2003.
26. V. Kalvine and P. Neittaanmäki. Dissipative elliptic problems in domains with cylindrical ends, scattering matrices, and radiation conditions. *J. Math. Sci.*, 120(2):1093–1108, 2004.

27. L. Baskin, V. Grikurov, P. Neittaanmäki, and B. Plamenevskii. Quantum phenomena in the control of electron flows. *Tech. Physics Letters*, 30(8):650–653, 2004.
28. V. O. Kalvine, P. Neittaanmäki, and B. A. Plamenevskii. On accumulations of the point spectrum of elliptic problems in domains with cylindrical ends. *Dokl. Akad. Nauk*, 394(2):586–588, 2004.
29. L. M. Baskin, P. Neittaanmäki, B. A. Plamenevskii, and A. A. Pozharskii. On electron transport in 3D quantum waveguides of variable cross-sections. *Nanotechnology*, 17:S19–S22, 2006.
30. L. M. Baskin, P. Neittaanmäki, B. A. Plamenevsky, and A. A. Pozharsky. Method for reducing the low-temperature thermal conductivity of nanofibers. *Dokl. Phys.*, 53(1):34–38, 2008.
31. L. Baskin, P. Neittaanmäki, B. Plamenevsky, and O. Sarafanov. Asymptotic theory of resonant tunneling in 3D quantum waveguides of variable cross-section. *SIAM J. Appl. Math.*, 70(5):1542–1566, 2009/10.
32. V. S. Buslaev, S. B. Levin, P. Neittaanmäki, and T. Ojala. New approach to numerical computation of the eigenfunctions of the continuous spectrum of three-particle Schrödinger operator. I. One-dimensional particles, short-range pair potentials. *J. Phys. A: Math. Theor.*, 43(28), 2010. doi: 10.1088/1751-8113/43/28/285205.
33. P. Neittaanmäki, B. A. Plamenevskii, and O. V. Sarafanov. Radiation and scattering in domains with periodic waveguides under slow stabilization of characteristics of a medium. *J. Math. Sci.*, 184(3):331–361, 2012.
34. P. Neittaanmäki, S. Repin, and J. Valdman. Estimates of deviations from exact solutions for elasticity problems with nonlinear boundary conditions. *Russian J. Numer. Anal. Math. Modelling*, 28(6):597–630, 2013. doi: 10.1515/rnam-2013-0033.
35. L. Baskin, M. Kabardov, P. Neittaanmäki, and O. Sarafanov. Asymptotic and numerical study of electron flow spin polarization in 2D waveguides of variable cross-section in the presence of magnetic field. *Math. Methods Appl. Sci.*, 37(7):1072–1092, 2014. doi: 10.1002/mma.2889.

1.4 Conference proceedings

1. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. On optimal shape design of an elastic body on a rigid foundation. In J. R. Whiteman, editor, *The*

Mathematics of Finite Elements and Applications (Uxbridge, 1984), V, pages 555–562, London, 1985. Academic Press.

2. C. A. Marinov and P. Neittaanmäki. Delay time predicting for distributed parameters circuits. In Proc. of 6th Internat. Conf. on Control Systems and Computer Science (Bucharest, 1985), pages 100–104, Bucharest, 1985. Polytechnical Institute of Bucharest, Dept. of Control and Computers.
3. J. Haslinger and P. Neittaanmäki. Structural optimization in elastic perfectly plastic punch problem. In Computational Mechanics '86: Theory and Applications (Tokyo, 1986), Vol. 1, 2, pages X77–X81, Tokyo, 1986. Springer.
4. C. A. Marinov, P. Neittaanmäki, and V. Hara. Signal delay in general distributed networks. In Proc. of the 30th Conference on Electronics, Telecommunications, Automation and Nuclear Engineering (ETAN, Herceg-Novi, 1986), Vol. III, pages 35–43, Beograd, 1986.
5. P. Neittaanmäki. On the optimal cooling of steel during continuous casting. In Proc. of 12th IFIP Conference on System Modelling and Optimization, number 84 in Lecture Notes in Control and Inform. Sci., pages 637–646. Springer, 1986.
6. C. A. Marinov and P. Neittaanmäki. Delay time for general distributed networks with application to timing analysis of digital MOS integrated circuits. In K. Board and D. R. J. Owen, editors, Proc. of Simulation of Semiconductor Devices and Processes (Swansea, 1986), pages 322–336, Swansea, 1986. Pineridge Press.
7. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. Shape optimization in contact problems. 1. Design of an elastic body. 2. Design of an elastic perfectly plastic body. In A. Bensoussan and J.-L. Lions, editors, Analysis and Optimization of Systems (Antibes, 1986), number 83 in Lecture Notes in Control and Inform. Sci., pages 29–39, Berlin, 1986. Springer.
8. J. Haslinger, P. Neittaanmäki, and D. Tiba. On state constrained optimal shape design problems. In K. H. Hoffmann and W. Krabs, editors, Optimal Control of Partial Differential Equations II: Theory and Applications (Oberwolfach, 1986), number 78 in ISNM, pages 109–122, Basel, 1987. Birkhäuser.
9. C. A. Marinov and P. Neittaanmäki. Asymptotic properties for distributed networks. In Proc. of 7th Internat. Conf. on Control Systems and Computer Science (Bucharest, 1987), Vol. I, pages 313–318. Polytech. Inst. of Bucharest, 1987.

10. J. Haslinger and P. Neittaanmäki. On the design of the optimal covering of an obstacle. In J. P. Zolesio, editor, *Boundary Control and Boundary Variations (Nice, 1986)*, number 100 in *Lecture Notes in Comput. Sci.*, pages 192–211, Berlin, 1988. Springer.
11. P. Neittaanmäki, D. Tiba, and R. Mäkinen. A variational inequality approach to the problem of the design of the optimal covering of an obstacle. In A. Bermúdez, editor, *Control of Partial Differential Equations (Santiago de Compostela, 1987)*, number 114 in *Lecture Notes in Control and Inform. Sci.*, pages 213–224, Berlin, 1989. Springer.
12. P. Neittaanmäki. Optimal shape design in contact problems. In H. A. Eschenauer and G. Thierauf, editors, *Discretization methods and structural optimization – Procedures and applications. Proc. of a GAMM-seminar (Siegen, FRG, 1988)*, number 42 in *Lecture Notes in Engineering*, pages 247–254, Berlin, 1989. Springer.
13. P. Neittaanmäki and T. Seidman. Optimal solutions for a free boundary problem for crystal growth. In F. Kappel, K. Kunich, and W. Schappacher, editors, *Control and Estimation of Distributed Parameter System (Vorau, 1988)*, number 91 in *Internat. Ser. Numer. Math.*, pages 323–334, Basel, 1989. Birkhäuser.
14. C. A. Marinov, P. Neittaanmäki, and V. Hara. A consistent model for the wiring delay of the MOS inverter. In *Proc. of European Conference on Circuit Theory and Design (ECCTD)*, number 308 in *Conference Publication*, pages 89–93, 1989.
15. G. Moroşanu, C. A. Marinov, and P. Neittaanmäki. Well-posed nonlinear problems in the theory of electrical networks with distributed and lumped parameters. In *Proc. of the 17th IASTED International Symposium on Simulation and Modelling (Lugano, 1989)*, pages 345–348, Zürich, 1989. Acta Press.
16. J. Haslinger and P. Neittaanmäki. On one identification problem in linear elasticity. In K.-H. Hoffmann and J. Sprekels, editors, *Free Boundary Value Problems (Oberwolfach, 1989)*, number 95 in *Internat. Ser. Numer. Math.*, pages 66–84, Basel, 1990. Birkhäuser.
17. P. Neittaanmäki and V. Rivkind. Remarks on some optimization problems in fluid dynamics. In *Proceedings of the Workshop on Optimization and Optimal Control (Jyväskylä, 1992)*, number 58 in *Ber. Univ. Jyväskylä Math. Inst.*, pages 137–144, 1993.

18. P. Neittaanmäki and V. Rivkind. Drops moving in flow with chemical reaction. In S. Wagner, E. H. Hirschel, J. Periaux, and R. Piva, editors, *Computational Fluid Dynamics '94 – Proc. of the 2nd European CFD Conference (Stuttgart, 1994)*, pages 888–893, Chichester, 1994. J. Wiley & Sons.
19. P. Neittaanmäki, V. Rivkind, and V. Zheludev. A wavelet transform based on periodic splines and finite element method. In *Finite Element Methods. Fifty Years of the Courant Element (Jyväskylä, 1993)*, number 164 in *Lecture Notes in Pure and Applied Mathematics*, pages 325–334, New York, 1994. Marcel Dekker.
20. P. Neittaanmäki, V. Rivkind, and L. Rukhovets. Mathematical and numerical modeling of pollution of lakes. In G. F. Carey, editor, *Finite Element Modeling of Environmental Problems. Surface and Subsurface Flow and Transport*, pages 209–227, Chichester, 1995. J. Wiley & Sons.
21. V.-M. Hokkanen, G. Moroşanu, and P. Neittaanmäki. An inverse problem for the telegraph system. In *Numerical Mathematics and Advanced Applications (ENUMATH 99, Jyväskylä)*, pages 303–307, River Edge, NJ, 2000. World Scientific.
22. A. Yu. Kokotov, P. Neittaanmäki, and B. A. Plamenevskii. Neumann problem for the wave equation in a wedge. In N. N. Uraltseva, editor, *Teoriya funktsij i prilozhenija (Theory of Functions and Applications), Problemy matematičeskogo analiza, Vyp. 20*, pages 71–110, Novosibirsk, 2000. Nauchnaya kniga (IDMI). (In Russian).
23. V. E. Grikurov, M. A. Lyalinov, P. Neittaanmäki, and B. A. Plamenevskii. Existence criterion of surface waves in diffraction gratings. In *Digests of the 9th Biennial IEEE Conference on Electromagnetic Field Computation (CEFC-2000, Milwaukee, WI)*, Milwaukee, WI, 2000. IEEE and Marquette University.
24. V. E. Grikurov, E. Heikkola, P. Neittaanmäki, and B. A. Plamenevskii. Scattering matrices and surface waves for diffraction gratings. In *Computational and Mathematical Methods on Science and Engineering (CMMSE-2002, Alicante)*, Vol. II, pages 158–165, 2003.
25. V. O. Kalvine, P. Neittaanmäki, and B. A. Plamenevskii. On a method of search for trapped modes in domains with cylindrical ends. In *Mathematical and Numerical Aspects of Wave Propagation (WAVES 2003, Jyväskylä)*, pages 469–474, Berlin, 2003. Springer.
26. S. Matyukevich and P. Neittaanmäki. Nonstationary Maxwell system with nonhomogeneous boundary conditions in domains with conical points. In

Proceedings of the St. Petersburg Mathematical Society, Vol. XIII, number 222 in Amer. Math. Soc. Transl. Ser. 2, pages 111–162, Providence, RI, 2008. Amer. Math. Soc.

2 Calculus of variation and optical control; optimization

2.1 Books

1. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape design: Theory and applications. J. Wiley & Sons, Chichester, 1988.
2. M. Mäkelä and P. Neittaanmäki. Nonsmooth optimization: Analysis and algorithms with applications to optimal control. World Scientific Publishing Co., River Edge, NJ, 1992. 18
3. P. Neittaanmäki and D. Tiba. Optimal control of nonlinear parabolic systems: Theory, algorithms and applications. Marcel Dekker, New York, 1994.
4. P. Neittaanmäki, M. Rudnicki, and A. Savini. Inverse problems and optimal design in electricity and magnetism. Oxford University Press, 1996.
5. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape, material and topology design. J. Wiley & Sons, Chichester, 2nd edition, 1996.
6. V. Arnăutu and P. Neittaanmäki. Optimal control from theory to computer programs. Kluwer, Dordrecht, 2003.
7. P. Neittaanmäki, J. Sprekels, and D. Tiba. Optimization of elliptic systems: Theory and applications. Springer, Berlin, 2006.
8. N. V. Banichuk and P. J. Neittaanmäki. Structural optimization with uncertainties, volume 162 of Solid Mechanics and Its Applications. Springer, Berlin, 2010.
9. N. Banichuk, J. Jeronen, P. Neittaanmäki, T. Saksa, and T. Tuovinen. Mechanics of moving materials, volume 207 of Solid Mechanics and Its Applications. Springer, Berlin, 2014.

2.2 Edited books

1. P. Neittaanmäki, editor. Proceedings of the Workshop on Optimization and Optimal Control (Jyväskylä, 1992), number 58 in Ber. Univ. Jyväskylä Math. Inst., 1993.

2. K. Miettinen, M. M. Mäkelä, P. Neittaanmäki, and J. Périaux, editors. Evolutionary algorithms in engineering and computer science. Recent advances in genetic algorithms, evolution strategies, evolutionary programming, genetic programming and industrial applications, Chichester, 1999. J. Wiley & Sons.
3. P. Neittaanmäki, T. Rossi, K. Majava, and O. Pironneau, editors. Proc. of the 4th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä), Vol I. University of Jyväskylä, 2004. CD-ROM.
4. P. Neittaanmäki, T. Rossi, S. Korotov, E. Oñate, J. Périaux, and D. Knörzer, editors. Proc. of the 4th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä), Vol II. University of Jyväskylä, 2004. CD-ROM.
5. P. Neittaanmäki, J. Périaux, and T. Tuovinen, editors. Evolutionary and deterministic methods for design, optimization and control: Applications to industrial and societal problems (EUROGEN 2007, Jyväskylä), Barcelona, 2008. CIMNE.
6. P. Neittaanmäki and K. Miettinen, editors. IFAC Workshop on Control Applications of Optimisation. IFAC, 2009. CD-ROM.
7. W. Fitzgibbon, Yu. Kuznetsov, P. Neittaanmäki, J. Périaux, and O. Pironneau, editors. Applied and numerical partial differential equations: Scientific computing in simulation, optimization and control in a multidisciplinary context, volume 15 of Computational Methods in Applied Sciences, Berlin, 2010. Springer.
8. W. Fitzgibbon, Y. Kuznetsov, P. Neittaanmäki, and O. Pironneau, editors. Modeling, simulation and optimization for science and technology, volume 34 of Computational Methods in Applied Sciences, Dordrecht, 2014. Springer.

2.3 Journal articles

1. J. Haslinger and P. Neittaanmäki. On the existence of optimal shapes in contact problems. *Numer. Funct. Anal. Optim.*, 7(2–3):107–124, 1984/85.
2. J. Haslinger and P. Neittaanmäki. Optimal shape design of systems governed by some boundary value problems. *Z. Angew. Math. Mech.*, 64:T279–T281, 1984.

3. P. Neittaanmäki and T. Tiihonen. Mathematical programming methods for an optimal shape design problem. *Z. Angew. Math. Mech.*, 64:T339–T340, 1984.
4. P. Neittaanmäki and T. Tiihonen. Sensitivity analysis for a class of shape control problems. *Z. Angew. Math. Mech.*, 65:T317–T319, 1985.
5. J. Haslinger, V. Horák, and P. Neittaanmäki. Shape optimization in contact problems with friction. *Numer. Funct. Anal. Optim.*, 8(5–6):557–587, 1985/86.
6. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. Shape optimization in contact problems based on penalization of the state inequality. *Apl. Mat.*, 31(1):54–77, 1986.
7. J. Haslinger and P. Neittaanmäki. On optimal shape design of systems governed by mixed Dirichlet–Signorini boundary value problems. *Math. Methods Appl. Sci.*, 8(2):157–181, 1986.
8. P. Neittaanmäki and E. Laitinen. Temperature distribution in continuous casting and its control. *Z. Angew. Math. Mech.*, 66:T388–T390, 1986.
9. J. Haslinger and P. Neittaanmäki. On the existence of optimal shapes in contact problems – perfectly plastic bodies. *Comput. Mech.*, 1(4):293–299, 1986.
10. J. Haslinger and P. Neittaanmäki. Shape optimization in contact problems. approximation and numerical realization. *RAIRO Modél. Math. Anal. Numér.*, 21(2):269–291, 1987.
11. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. Sensitivity analysis for some optimal shape design problem. *Z. Angew. Math. Mech.*, 67:T200–T203, 1987.
12. P. Neittaanmäki and D. Tiba. On the approximation of the boundary control in two-phase Stefan-type problems. *Control Cybernet.*, 16(3–4):33–44, 1987.
13. P. Neittaanmäki and D. Tiba. A steepest descent method for the approximation of the boundary control in two-phase Stefan problem. *Mathematica (Cluj)*, 29(2):157–167, 1987.
14. P. Neittaanmäki and D. Tiba. A variational inequality approach to constrained control problems for parabolic equations. *Appl. Math. Optim.*, 17:185–201, 1988.
15. P. Neittaanmäki, J. Sokołowski, and J. P. Zolésio. Optimization of the domain in elliptic variational inequalities. *Appl. Math. Optim.*, 18:85–98, 1988.

16. J. Haslinger, P. Neittaanmäki, T. Tiihonen, and K. Kaarna. Optimal shape design and unilateral boundary value problems. I. *J. Optimal Control Appl. Methods*, 9:127–144, 1988.
17. J. Haslinger, P. Neittaanmäki, T. Tiihonen, and A. Kaarna. Optimal shape design and unilateral boundary value problems. II. *J. Optimal Control Appl. Methods*, 9:145–163, 1988.
18. E. Laitinen and P. Neittaanmäki. On numerical simulation of the continuous casting process. *J. Engrg. Math.*, 22:335–354, 1988.
19. E. Laitinen and P. Neittaanmäki. On numerical solution of the problem connected with the control of the secondary cooling in the continuous casting process. *Control Theory Adv. Tech.*, 4:285–305, 1988.
20. E. Laitinen and P. Neittaanmäki. Metallin jatkuvavaluprosessin simulointi ja säätö (Simulation and control of the continuous steel casting). *Arkhimedes*, 4:206–220, 1988. (In Finnish).
21. P. Neittaanmäki and K. Salmenjoki. Sensitivity analysis for optimal shape design problems. *Structural Optimization*, 1:241–251, 1989.
22. K. Salmenjoki, P. Neittaanmäki, and G. Arumugam. Optimal shape design of an electromagnet. *Z. Angew. Math. Mech.*, 69:T234–T237, 1989.
23. E. Laitinen and P. Neittaanmäki. On FEM-based simulation and application to solidification process. *Physica Scripta*, T33:86–90, 1990.
24. P. Neittaanmäki. Computer aided optimal structural design. *Surveys Math. Indust.*, 1(3):173–215, 1991.
25. J. Haslinger, V. Horák, P. Neittaanmäki, and K. Salmenjoki. Identification of critical curves. II. Discretization and numerical realization. *Appl. Math.*, 36(5):380–391, 1991.
26. P. Neittaanmäki and A. Stachurski. Solving some optimal control problems using the barrier penalty function method. *Appl. Math. Optim.*, 25:127–149, 1992.
27. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. On FE-grid relocation in solving unilateral boundary value problems by FEM. *Appl. Math.*, 37:105–122, 1992.
28. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. Sensitivity analysis for discretized unilateral plane elasticity problem. *Finite Elem. Anal. Des.*, 12:13–25, 1992.

29. P. Neittaanmäki. Design sensitivity analysis for state-constrained structural design problems. *Mech. Structures Mach.*, 20:433–458, 1992.
30. T. Männikkö, P. Neittaanmäki, and D. Tiba. A rapid method for the identification of the free boundary in two-phase Stefan problems. *IMA J. Numer. Anal.*, 14(3):411–420, 1994.
31. V. Barbu, P. Neittaanmäki, and A. Niemistö. Approximating optimal control problems governed by variational inequalities. *Numer. Funct. Anal. Optim.*, 15:489–502, 1994.
32. V. Barbu, P. Neittaanmäki, and A. Niemistö. A penalty method for the identification of nonlinear elliptic differential operator. *Numer. Funct. Anal. Optim.*, 15:503–530, 1994.
33. P. Di Barba, A. Kladas, P. Neittaanmäki, M. Rudnicki, and A. Savini. Applications of global optimization strategies to the optimal shape design of a transformer winding. *Adv. Engrg. Softw.*, 19:121–125, 1994.
34. P. Neittaanmäki and D. Tiba. An embedding of domains approach in free boundary problems and optimal design. *SIAM J. Control Optim.*, 33(5):1587–1602, 1995.
35. T. Kärkkäinen, P. Neittaanmäki, and A. Niemistö. Numerical methods for nonlinear inverse problems. *J. Comput. Appl. Math.*, 74:231–244, 1996. TICAM Symposium (Austin, TX, 1995).
36. P. Neittaanmäki, T. Männikkö, and D. Tiba. Optimal control approach to optimal shape design. *Z. Angew. Math. Mech.*, 76(3):203–206, 1996.
37. V. Arnäutu and P. Neittaanmäki. Discretization estimates for an elliptic control problem. *Numer. Funct. Anal. Optim.*, 19:431–464, 1998.
38. M. Rudnicki, P. Neittaanmäki, and T. Jokinen. Neural network simulation of a pulse magnetiser for magnetising permanent magnets. *COMPEL J.*, 17(6):697–707, 1998.
39. W. Liu, P. Neittaanmäki, and D. Tiba. Sur les problèmes d’optimisation structurelle. *C. R. Acad. Sci. Paris Sér. I Math.*, 331(1):101–106, 2000.
40. W. B. Liu, P. Neittaanmäki, and D. Tiba. Existence for shape optimization problems in arbitrary dimension. *SIAM J. Control Optim.*, 41:1440–1454, 2003.
41. N. Banichuk and P. Neittaanmäki. On structural optimization with incomplete information. *Mech. Based Des. Struct. Mach.*, 35(1):75–95, 2007.

42. P. Neittaanmäki, A. Pennanen, and D. Tiba. Fixed domain approaches in shape optimization problems with Dirichlet boundary conditions. *Inverse Problems*, 25(5), 2009. doi: 10.1088/0266-5611/25/5/055003.

2.4 Conference proceedings

1. J. Haslinger and P. Neittaanmäki. On the method of penalization in design optimization of systems governed by some unilateral boundary value problems. In K. H. Hoffmann and W. Krabs, editors, *Optimal Control of Partial Differential Equations (Oberwolfach, 1982)*, number 68 in *Internat. Schriftenreihe Numer. Math.*, pages 110–126, Basel, 1984. Birkhäuser.
2. P. Neittaanmäki and D. Tiba. On the finite element approximation of the boundary control for two-phase Stefan problems. In A. Bensoussan and J. L. Lions, editors, *Analysis and Optimization of Systems (Nice, 1984)*, Part 1, number 62 in *Lecture Notes in Control and Inform. Sci.*, pages 356–370, Berlin, 1984. Springer.
3. P. Neittaanmäki and D. Tiba. On the approximation of the boundary control of the two-phase Stefan problem. In *Proc. of 23rd IEEE Conference on Decision and Control (Las Vegas, NV, 1984)*, pages 1705–1708. IEEE, 1984.
4. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. On optimal shape design of an elastic body on a rigid foundation. In J. R. Whiteman, editor, *The Mathematics of Finite Elements and Applications (Uxbridge, 1984)*, V, pages 555–562, London, 1985. Academic Press.
5. P. Neittaanmäki and T. Tiihonen. Sensitivity analysis for some control problems. In *Proc. of International Conference on Numerical Methods and Applications (Sofia, 1984)*, pages 451–458, 1985.
6. J. Haslinger and P. Neittaanmäki. Shape optimization of an elastic body in contact with rigid foundation. In C. A. Brebbia, editor, *Variational Methods in Engineering (Southampton, 1985)*, pages 6–31–6–40, Berlin, 1985. Springer.
7. P. Neittaanmäki. On the control of cooling during continuous casting. In R. W. Levis and K. Morgan, editors, *Numerical Methods in Thermal Problems (Swansea, 1985)*, Vol. 1, pages 240–250. Pineridge Press, 1985.
8. L. Holappa, E. Laitinen, S. Louhenkilpi, and P. Neittaanmäki. Optimization of the secondary cooling in the continuous casting of steel billets. In *Proceedings International Symposium on the Continuous Casting of Steel Billets (Vancouver, 1985)*, pages 242–259, Montreal, 1985. Metallurgical Society of CIM and Canadian Institute of Mining and Metallurgy.

9. P. Koikkalainen, E. Laitinen, S. Louhenkilpi, P. Neittaanmäki, and L. Holappa. FE-modelling of continuous casting problem. In *Computational Mechanics '86: Theory and Applications (Tokyo, 1986)*, Vol. 1, 2, pages III 29–III 35, Tokyo, 1986. Springer.
10. J. Haslinger and P. Neittaanmäki. Structural optimization in elastic perfectly plastic punch problem. In *Computational Mechanics '86: Theory and Applications (Tokyo, 1986)*, Vol. 1, 2, pages X77–X81, Tokyo, 1986. Springer.
11. P. Neittaanmäki. On the optimal cooling of steel during continuous casting. In *Proc. of 12th IFIP Conference on System Modelling and Optimization*, number 84 in *Lecture Notes in Control and Inform. Sci.*, pages 637–646. Springer, 1986.
12. P. Koikkalainen, N. Asano, and P. Neittaanmäki. Numerical modelling of material properties in mushy zone. In *Proc. of JSME Contr. of Strength of Materials*, No 860–10,11, 1986, Kyoto. JSME, 1986. (In Japanese).
13. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. Shape optimization in contact problems. 1. Design of an elastic body. 2. Design of an elastic perfectly plastic body. In A. Bensoussan and J.-L. Lions, editors, *Analysis and Optimization of Systems (Antibes, 1986)*, number 83 in *Lecture Notes in Control and Inform. Sci.*, pages 29–39, Berlin, 1986. Springer.
14. J. Haslinger, P. Neittaanmäki, and D. Tiba. On state constrained optimal shape design problems. In K. H. Hoffmann and W. Krabs, editors, *Optimal Control of Partial Differential Equations II: Theory and Applications (Oberwolfach, 1986)*, number 78 in *ISNM*, pages 109–122, Basel, 1987. Birkhäuser.
15. P. Neittaanmäki. On the control of the secondary cooling in the continuous casting process. In K. H. Hoffmann and W. Krabs, editors, *Optimal Control of Partial Differential Equations II: Theory and Applications (Oberwolfach, 1986)*, number 78 in *ISNM*, pages 161–177, Basel, 1987. Birkhäuser.
16. J. Haslinger and P. Neittaanmäki. On the design of the optimal covering of an obstacle. In J. P. Zolesio, editor, *Boundary Control and Boundary Variations (Nice, 1986)*, number 100 in *Lecture Notes in Comput. Sci.*, pages 192–211, Berlin, 1988. Springer.
17. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. On optimal mesh design for FEM in unilateral boundary value problems. In J. R. Whiteman, editor, *The Mathematics of Finite Elements and Applications VI (Uxbridge, 1987)*, pages 103–113, London, 1988. Academic Press.

18. E. Laitinen, T. Männikkö, P. Neittaanmäki, and S. Louhenkilpi. On the real-time control of the continuous casting process. In *Heat Transfer in Phase-Change Problems, Extended Abstracts of the Eurotherm Seminar 6 (Delft, 1988)*, pages 40–42. Delft University of Technology, 1988.
19. J. Haslinger and P. Neittaanmäki. Optimal shape design in contact problems of elasticity. In F. Kuhnert and B. Silbermann, editors, *Proc. of the 9th Conference on Problems and Methods in Mathematical Physics (Karl-Marx-Stadt, 1988)*, number 111 in *Teubner-Texte Math.*, pages 84–93, Leipzig, 1989. Teubner.
20. P. Neittaanmäki, D. Tiba, and R. Mäkinen. A variational inequality approach to the problem of the design of the optimal covering of an obstacle. In A. Bermúdez, editor, *Control of Partial Differential Equations (Santiago de Compostela, 1987)*, number 114 in *Lecture Notes in Control and Inform. Sci.*, pages 213–224, Berlin, 1989. Springer.
21. P. Neittaanmäki. Optimal shape design in contact problems. In H. A. Eschenauer and G. Thierauf, editors, *Discretization methods and structural optimization – Procedures and applications. Proc. of a GAMM-seminar (Siegen, FRG, 1988)*, number 42 in *Lecture Notes in Engineering*, pages 247–254, Berlin, 1989. Springer.
22. T. Männikkö and P. Neittaanmäki. On the real-time control of the secondary cooling in the continuous casting process. In *Proc. of the 17th IASTED International Symposium on Simulation and Modelling (Lugano, 1989)*, pages 52–55, Zürich, 1989. Acta Press.
23. T. Männikkö, E. Laitinen, and P. Neittaanmäki. Real-time simulator for the continuous casting process. In R. W. Lewis and K. Morgan, editors, *Proc. of the 6th International Conference on Numerical Methods in Thermal Problems, Vol VI, Part 2*, pages 309–319, Swansea, 1989. Pineridge Press.
24. K. Salmenjoki and P. Neittaanmäki. Comparison of various techniques for shape design sensitivity analysis. In C. A. Brebbia and S. Hernandez, editors, *Proc. of the 1st International Conference on Computer Aided Optimum Design of Structures (Southampton, 1989)*, pages 367–377, Southampton, 1989. Computational Mechanical Publications.
25. P. Neittaanmäki. On the methods for optimal shape design. In J. Manley, S. McKee, and D. H. Owens, editors, *Proc. of the Third European Conference on Mathematics in Industry (Glasgow, 1988)*, number 5 in *European Consort. Math. Indust.*, pages 453–459, Stuttgart, 1990. Teubner.

26. E. Laitinen and P. Neittaanmäki. On the real-time simulation and control of continuous casting process. In J. Manley, S. McKee, and D. H. Owens, editors, Proc. of the Third European Conference on Mathematics in Industry (Glasgow, 1988), number 5 in European Consort. Math. Indust., pages 401–408, Stuttgart, 1990. Teubner.
27. P. Neittaanmäki and A. Stachurski. Solving some optimal control problems using the barrier penalty function method. In H. J. Sebastian and K. Tammer, editors, System Modelling and Optimization (Leipzig, 1989), number 143 in Lecture Notes in Control and Inform. Sci., pages 358–367, Berlin, 1990. Springer.
28. T. Männikkö, E. Laitinen, and P. Neittaanmäki. Real-time simulation and control system for the continuous casting process. In H. J. Sebastian and K. Tammer, editors, System Modelling and Optimization (Leipzig, 1989), number 143 in Lecture Notes in Control and Inform. Sci., pages 809–817, Berlin, 1990. Springer.
29. P. Neittaanmäki. On the optimal shape design problems. In K.-H. Hoffman and J. Sprekels, editors, Free Boundary Problems: Theory and Applications (Irsee, 1987), Vol. I, number 185 in Pitman Res. Notes Math. Ser., pages 166–182, Harlow, 1990. Longman Sci. Tech.
30. J. Haslinger and P. Neittaanmäki. On one identification problem in linear elasticity. In K.-H. Hoffmann and J. Sprekels, editors, Free Boundary Value Problems (Oberwolfach, 1989), number 95 in Internat. Ser. Numer. Math., pages 66–84, Basel, 1990. Birkhäuser.
31. P. Neittaanmäki, D. Tiba, and R. Mäkinen. Exact controllability for elliptic systems with applications to optimal shape design. In J. P. Zolesio, editor, Proc. of Nice IFIP-meeting. Springer, 1990.
32. M. Mäkelä and P. Neittaanmäki. Nonsmooth optimization in optimal shape design. In G. Feichtinger, R. F. Hartl, W. H. Janko, W. E. Katzenburg, and A. Stepan, editors, Proc. of the XV Symposium on Operations Research (Vienna, 1990), number 64 in Methods of Operation Research, pages 95–104, Frankfurth am Main, 1991. Anton Hain.
33. E. Laitinen, S. Louhenkilpi, T. Männikkö, and P. Neittaanmäki. Automatic secondary cooling control for the continuous casting process of steel. In Hj. Wacker and W. Zulehner, editors, Proc. of the Fourth ECMI conference, pages 109–121, 1991.

34. D. Tiba, P. Neittaanmäki, and R. Mäkinen. Controllability-type properties for elliptic systems and applications. In F. Kappel and K. Kunisch, editors, *Estimation and Control of Distributed Parameter Systems (Vorau, 1990)*, number 100 in *Internat. Ser. Numer. Math.*, pages 341–353, Basel, 1991. Birkhäuser.
35. P. Neittaanmäki. On the control of the domain in variational inequalities. In V. Barbu, editor, *Differential Equations and Control Theory (Iași, 1990)*, number 250 in *Pitman Res. Notes Math. Ser.*, pages 228–247, Harlow, 1991. Longman Sci. Tech.
36. P. Neittaanmäki and D. Tiba. Optimal control for state constrained two-phase Stefan problems. In *Numerical Methods for Free Boundary Problems (Jyväskylä, 1990)*, pages 309–316, Basel, 1991. Birkhäuser.
37. S. Jensen, E. Laitinen, P. Neittaanmäki, and T. Seidman. Computational stability of an initially radial solution of a growth/dissolution problem in a nonradial implementation. In *Numerical Methods for Free Boundary Problems (Jyväskylä, 1990)*, pages 191–201, Basel, 1991. Birkhäuser.
38. D. Tiba, P. Neittaanmäki, and R. Mäkinen. A fixed domain approach in an optimal shape design problem. In *Proc. of 13th IMACS World Congress on Computation and Applied Mathematics (Dublin, 1991)*, pages 1658–1660, Dublin, 1991. Criterion Press.
39. R. Mäkinen, P. Neittaanmäki, and D. Tiba. On a fixed domain approach for a shape optimization problem. In W. F. Ames and P. J. van der Houwen, editors, *Computational and Applied Mathematics II: Differential Equations (Dublin, 1991)*, pages 317–326, Amsterdam, 1992. North-Holland.
40. R. Mäkinen, P. Neittaanmäki, and D. Tiba. A boundary controllability approach in optimal shape design. In *Boundary Control and Boundary Variation (Sophia-Antipolis, 1990)*, number 178 in *Lecture Notes in Control and Inform. Sci.*, pages 309–320, Berlin, 1992. Springer.
41. R. A. E. Mäkinen and P. Neittaanmäki. Sensitivity analysis for shape optimization problems in structural and fluid mechanics. In J. Herskovits, editor, *Structural optimization 93 – The World Congress on Optimal Design of Structural Systems (Rio de Janeiro, 1993)*, Vol. II, pages 173–180. Associação Brasileira de Ciências Mecânicas, 1993.
42. R. A. E. Mäkinen, P. Neittaanmäki, J. Periaux, M. Sefrioui, and J. Toivanen. Parallel genetic solution for multiobjective MDO. In P. Schiano, A. Ecer, J. Periaux, and N. Satofuka, editors, *Parallel Computational Fluid Dynamics:*

Algorithms and Results Using Advanced Computers (Parallel CFD'96, Capri), pages 352–359, Amsterdam, 1997. North-Holland.

43. M. Rudnicki, P. Neittaanmäki, and T. Jokinen. Neural network simulation of a pulse magnetiser for magnetising permanent magnets. In Proc. International Symposium on Theoretical Electrical Engineering (ISTET'97, Palermo), pages 396–399, 1997.
44. R. A. E. Mäkinen, P. Neittaanmäki, J. Periaux, and J. Toivanen. A genetic algorithm for multiobjective design optimization in aerodynamics and electromagnetics. In K. D. Papailiou, D. Tsahalis, J. Periaux, and C. Hirsch, editors, Computational Fluid Dynamics '98, Vol. 2: Invited Lectures, Minisymposia and Special Technological Sessions of the Fourth ECCOMAS Conference (Athens, 1998), pages 418–422, Chichester, 1998. J. Wiley & Sons.
45. P. Neittaanmäki and D. Tiba. Shape optimization in free boundary systems. In N. Kenmochi, editor, Proceedings of International Conference on Free Boundary Problems: Theory and Applications II (Chiba, 1999), number 14 in GAKUTO International Series: Mathematical Sciences and Applications, pages 334–343, Tokyo, 2000. Gakkōtoshō.
46. N. Banichuk, M. M. Mäkelä, and P. Neittaanmäki. Shape optimization for structures from quasi-brittle materials subject to cyclic loads. In G. De Roek and B. H. V. Topping, editors, Identification, Control and Optimisation of Engineering Structures (Leuven, 2000), pages 145–151, Edinburgh, 2000. Civil-Comp Press.
47. N. Banichuk and P. Neittaanmäki. Optimal design with incomplete information using worst case scenario. In F. L. Chernousko, G. V. Kostin, and V. V. Saurin, editors, Advances in Mechanics: Dynamics and Control. Proceedings of the 14th International Workshop on Dynamics and Control, pages 46–52, Moscow, 2008. Nauka.

3 Numerical analysis

3.1 Books

1. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape design: Theory and applications. J. Wiley & Sons, Chichester, 1988.
2. M. Křížek and P. Neittaanmäki. Finite element approximation of variational problems and applications, volume 50 of Pitman Monographs and Surveys

- in Pure and Applied Mathematics. Longman Scientific & Technical, Harlow; Copubl. J. Wiley & Sons, New York, 1990.
3. P. Neittaanmäki, M. Rudnicki, and A. Savini. Inverse problems and optimal design in electricity and magnetism. Oxford University Press, 1996.
 4. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape, material and topology design. J. Wiley & Sons, Chichester, 2nd edition, 1996.
 5. M. Křížek and P. Neittaanmäki. Mathematical and numerical modelling in electrical engineering: Theory and applications. Kluwer Academic Publishers, Dordrecht, 1996. With a foreword by I. Babuška.
 6. V. Arnăutu and P. Neittaanmäki. Optimal control from theory to computer programs. Kluwer, Dordrecht, 2003.
 7. P. Neittaanmäki, J. Sprekels, and D. Tiba. Optimization of elliptic systems: Theory and applications. Springer, Berlin, 2006.
 8. N. V. Banichuk and P. J. Neittaanmäki. Structural optimization with uncertainties, volume 162 of Solid Mechanics and Its Applications. Springer, Berlin, 2010.
 9. O. Mali, P. Neittaanmäki, and S. Repin. Accuracy verification methods: Theory and algorithms, volume 32 of Computational Methods in Applied Sciences. Springer, Berlin, 2014.
 10. N. Banichuk, J. Jeronen, P. Neittaanmäki, T. Saksa, and T. Tuovinen. Mechanics of moving materials, volume 207 of Solid Mechanics and Its Applications. Springer, Berlin, 2014.
 11. A. Averbuch, P. Neittaanmäki, and V. Zheludev. Spline and spline wavelet methods with applications to signal and image processing. Vol. I. Periodic splines. Springer, Berlin, 2014.
 12. L. Baskin, P. Neittaanmäki, B. A. Plamenevskii, and O. Sarafanov. Resonant tunneling: Quantum waveguides of variable cross-section, asymptotics, numerics, and applications. Springer, Cham, 2015.
 13. A. Averbuch, P. Neittaanmäki, and V. Zheludev. Spline and spline wavelet methods with applications to signal and image processing. Vol. II. Non-periodic splines. Springer, Cham, 2016.

3.2 Edited books

1. P. Neittaanmäki, editor. Proceedings of the Summer School in Numerical Analysis at Jyväskylä, number 31 in Ber. Univ. Jyväskylä Math. Inst., 1985.
2. J. Hallikas, M.-L. Kanervirta, and P. Neittaanmäki, editors. Numeeriset simulointimallit (Numerical simulation models), number 80 in VTT-Symposium, 1987. (Mainly in Finnish).
3. P. Neittaanmäki, editor. Proceedings of the Minisymposium on Numerical Methods for Semiconductors and Magnets (Jyväskylä, 1988), number 42 in Ber. Univ. Jyväskylä Math. Inst., 1988.
4. P. Neittaanmäki, editor. Finite element method in simulation (Jyväskylä, 1990). Number R07/90 in CSC Research Reports. Center for Scientific Computing, Espoo, 1990.
5. P. Neittaanmäki, editor. Numerical methods for free boundary problems (Jyväskylä, 1990), number 99 in International Series of Numerical Mathematics, Basel, 1991. Birkhäuser.
6. P. Neittaanmäki, editor. Proceedings of the Workshop on Optimization and Optimal Control (Jyväskylä, 1992), number 58 in Ber. Univ. Jyväskylä Math. Inst., 1993.
7. P. Neittaanmäki and V. Rivkind, editors. Jyväskylä–St. Petersburg Seminar on Partial Differential Equations and Numerical Methods (Jyväskylä, 1993), number 56 in Ber. Univ. Jyväskylä Math. Inst., 1993.
8. P. Neittaanmäki, editor. Industrial Mathematics, Selected lectures presented in Finnish Mathematicians Days 11.–12.1.1993, number 1 in Reports on Applied Mathematics and Computing. University of Jyväskylä, Department of Mathematics, 1993.
9. M. Křížek, P. Neittaanmäki, and R. Stenberg, editors. Finite element methods. Fifty years of the Courant element (Jyväskylä, 1993), number 164 in Lecture Notes in Pure and Applied Mathematics, New York, 1994. Marcel Dekker.
10. R. A. E. Mäkinen and P. Neittaanmäki, editors. Proceedings of the 5th Finnish Mechanics Days, number 3 in Report Series. University of Jyväskylä, Department of Mathematics, Laboratory of Scientific Computing, 1994.
11. M. Křížek, P. Neittaanmäki, and R. Stenberg, editors. Finite element methods: Superconvergence, postprocessing and a posteriori estimates (Jyväskylä, 1996), number 196 in Lecture Notes in Pure and Appl. Math., New York, 1998. Marcel Dekker.

12. K. Miettinen, M. M. Mäkelä, P. Neittaanmäki, and J. Périaux, editors. Evolutionary algorithms in engineering and computer science. Recent advances in genetic algorithms, evolution strategies, evolutionary programming, genetic programming and industrial applications, Chichester, 1999. J. Wiley & Sons.
13. P. Neittaanmäki and L. Rivkind, editors. Analysis and approximation of boundary value problems. A memorial meeting dedicated to Prof. Valery Rivkind, number B8/2000 in Reports of the Department of Mathematical Information Technology, Series B, Scientific Computing. University of Jyväskylä, 2000.
14. P. Neittaanmäki, T. Tiihonen, and P. Tarvainen, editors. Numerical mathematics and advanced applications (ENUMATH 99, Jyväskylä), River Edge, NJ, 2000. World Scientific.
15. M. Křížek and P. Neittaanmäki, editors. Finite element methods. Three-dimensional problems (Jyväskylä, 2000), number 15 in GAKUTO International Series. Mathematical Sciences and Applications, Tokyo, 2001. Gakkōtoshō.
16. G. C. Cohen, E. Heikkola, P. Joly, and P. Neittaanmäki, editors. Mathematical and Numerical Aspects of Wave Propagation (WAVES 2003, Jyväskylä), Berlin, 2003. Springer.
17. E. Heikkola, Yu. Kuznetsov, P. Neittaanmäki, and O. Pironneau, editors. Numerical methods for scientific computing. Variational problems and applications, Barcelona, 2003. CIMNE. Dedicated to Dr. Jacques Périaux on the occasion of his 60th birthday.
18. M. Křížek, P. Neittaanmäki, R. Glowinski, and S. Korotov, editors. Conjugate gradient algorithms and finite element methods: A half-century of contributions to scientific computing, Berlin, 2004. Springer.
19. P. Neittaanmäki, T. Rossi, K. Majava, and O. Pironneau, editors. Proc. of the 4th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä), Vol I. University of Jyväskylä, 2004. CD-ROM.
20. P. Neittaanmäki, T. Rossi, S. Korotov, E. Oñate, J. Périaux, and D. Knörzer, editors. Proc. of the 4th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä), Vol II. University of Jyväskylä, 2004. CD-ROM.

21. P. Neittaanmäki, J. Périaux, and T. Tuovinen, editors. Evolutionary and deterministic methods for design, optimization and control: Applications to industrial and societal problems (EUROGEN 2007, Jyväskylä), Barcelona, 2008. CIMNE.
22. R. Glowinski and P. Neittaanmäki, editors. Partial differential equations: Modelling and numerical simulation, number 16 in Computational Methods in Applied Sciences, Berlin, 2008. Springer.
23. P. Neittaanmäki and K. Miettinen, editors. IFAC Workshop on Control Applications of Optimisation. IFAC, 2009. CD-ROM.
24. R. Mäkinen, P. Neittaanmäki, T. Tuovinen, and K. Valpe, editors. Proceedings of the 10th Finnish Mechanics Days, number A1/2009 in Reports of the Department of Mathematical Information Technology, Series A, Collections. University of Jyväskylä, 2009. (Partially in Finnish).
25. W. Fitzgibbon, Yu. Kuznetsov, P. Neittaanmäki, J. Périaux, and O. Pironneau, editors. Applied and numerical partial differential equations: Scientific computing in simulation, optimization and control in a multidisciplinary context, volume 15 of Computational Methods in Applied Sciences, Berlin, 2010. Springer.
26. W. Fitzgibbon, Y. Kuznetsov, P. Neittaanmäki, and O. Pironneau, editors. Modeling, simulation and optimization for science and technology, volume 34 of Computational Methods in Applied Sciences, Dordrecht, 2014. Springer.
27. M. Lehto and P. Neittaanmäki, editors. Cyber security: Analytics, technology and automation, volume 78 of Intelligent Systems, Control and Automation: Science and Engineering, Dordrecht, 2015. Springer.

3.3 Journal articles

1. P. Neittaanmäki and R. Picard. Error estimates for the finite element approximation to a Maxwell-type boundary value problem. *Numer. Funct. Anal. Optim.*, 2:267–285, 1980. MR 82b:78006.
2. P. Neittaanmäki and J. Saranen. Finite element approximation of electromagnetic fields in three dimensional space. *Numer. Funct. Anal. Optim.*, 2:487–506, 1980. MR 82b:78005.
3. P. Neittaanmäki and R. Picard. On the finite element method for time-harmonic acoustic boundary value problems. *Comput. Math. Appl.*, 7:127–138, 1981. MR 82g:76031.

4. P. Neittaanmäki and J. Saranen. Fehlerasymptotik für die Finite-Element Approximation einer akustischen Randwertaufgabe. *Z. Angew. Math. Mech.*, 61:T298–T300, 1981.
5. P. Neittaanmäki and J. Saranen. On the finite element approximation for Maxwell's problem in polynomial domains of the plane. *Applicable Anal.*, 12:73–83, 1981. MR 82h:65085.
6. P. Neittaanmäki and J. Saranen. Semi-discrete Galerkin approximation method applied to initial boundary value problems for Maxwell's equations in anisotropic, inhomogeneous media. *Proc. Roy. Soc. Edinburgh Sect. A*, 89:125–133, 1981. MR 82h:65070.
7. P. Neittaanmäki and J. Saranen. Finite element approximation of vector fields given by curl and divergence. *Math. Methods Appl. Sci.*, 3:328–335, 1981. MR 83e:65193.
8. P. Neittaanmäki and J. Saranen. On finite element approximation of the gradient for solution of Poisson equation. *Numer. Math.*, 37:333–337, 1981. MR 82h:65086.
9. P. Neittaanmäki and J. Saranen. A mixed finite element method for the heat flow problem. *BIT*, 21:342–346, 1981. MR 82m:65092.
10. P. Neittaanmäki and R. Picard. On the convergence of the finite element approximation of eigenfrequencies and eigenvectors to Maxwell's boundary value problem. *Ann. Acad. Sci. Fenn. Ser. A I Math.*, 6:255–271, 1981.
11. P. Neittaanmäki and J. Saranen. The radiation problem for the Schrödinger operator in some domains with noncompact boundaries. *Soc. Sci. Fenn. Comment. Phys.-Math.*, 52:14 pp., 1982. MR 83m:35041.
12. P. Neittaanmäki and J. Saranen. A modified least squares FE-method for ideal fluid flow problems. *J. Comput. Appl. Math.*, 8:165–170, 1982.
13. P. Neittaanmäki. On the numerical solution of Helmholtz's equation by different finite element methods. *Z. Angew. Math. Mech.*, 63(5):T364–T366, 1983.
14. M. Křížek and P. Neittaanmäki. On the validity of Friedrichs' inequalities. *Math. Scand.*, 54:17–26, 1984.
15. J. Haslinger and P. Neittaanmäki. On different finite element methods for approximating the gradient of the solution to the Helmholtz equation. *Comput. Methods Appl. Mech. Engrg.*, 42:131–148, 1984.

16. J. Haslinger and P. Neittaanmäki. Optimal shape design of systems governed by some boundary value problems. *Z. Angew. Math. Mech.*, 64:T279–T281, 1984.
17. P. Neittaanmäki and T. Tiihonen. Mathematical programming methods for an optimal shape design problem. *Z. Angew. Math. Mech.*, 64:T339–T340, 1984.
18. M. Křížek and P. Neittaanmäki. Finite element approximation for a div-rot system with mixed boundary conditions in non-smooth plane domains. *Apl. Mat.*, 29:272–285, 1984.
19. M. Křížek and P. Neittaanmäki. Superconvergence phenomenon in the finite element method arising from averaging gradients. *Numer. Math.*, 45:105–116, 1984.
20. V. Lappalainen, P. Neittaanmäki, and T. Tiihonen. Rinnakkaislaskenta osittaisdifferentiaaliyhtälöiden numeerisessa ratkaisemisessa (Parallel computing in numerical solution procedures for partial differential equations). *Arkhimedes*, 36:73–84, 1984. (In Finnish).
21. P. Neittaanmäki and K. Ruotsalainen. On the numerical solution of the bifurcation problem for the sine-Gordon equation. *Arab. J. Math.*, 6(1–2):35–62, 1985.
22. J. Haslinger, V. Horák, and P. Neittaanmäki. Shape optimization in contact problems with friction. *Numer. Funct. Anal. Optim.*, 8(5–6):557–587, 1985/86.
23. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. Shape optimization in contact problems based on penalization of the state inequality. *Apl. Mat.*, 31(1):54–77, 1986.
24. P. Neittaanmäki. Computational mechanics in Finland. *IACM-Bulletin*, 2:3–5, 1986.
25. M. Křížek and P. Neittaanmäki. Internal FE approximation of spaces of divergence-free functions in three-dimensional domains. *Internat. J. Numer. Methods Fluids*, 6(11):811–817, 1986.
26. S. Palosaari, S. Parviainen, J. Hiironen, J. Reunanen, and P. Neittaanmäki. A random search algorithm for constrained global optimization. *Acta Polytech. Scand. Chem. Tech. Metal Ser.*, 172:45 pp., 1986.
27. P. Neittaanmäki and Q. Lin. Acceleration of the convergence in finite difference method by predictor-corrector and splitting extrapolation methods. *J. Comput. Math.*, 5(2):181–190, 1987.

28. M. Křížek and P. Neittaanmäki. On superconvergence techniques. *Acta Appl. Math.*, 9(3):175–198, 1987.
29. M. Křížek and P. Neittaanmäki. On a global superconvergence of the gradient of linear triangular elements. *J. Comput. Appl. Math.*, 18(2):221–233, 1987.
30. P. Neittaanmäki and K. Saarinen. Multigrid approach for molecular calculations. *Z. Angew. Math. Mech.*, 67:T436–T437, 1987.
31. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. Sensitivity analysis for some optimal shape design problem. *Z. Angew. Math. Mech.*, 67:T200–T203, 1987.
32. J. Nečas, A. Lehtonen, and P. Neittaanmäki. On the construction of Lusternik–Schnirelmann critical values with application to bifurcation problems. *Appl. Anal.*, 25(4):253–268, 1987.
33. P. Neittaanmäki and D. Tiba. On the approximation of the boundary control in two-phase Stefan-type problems. *Control Cybernet.*, 16(3–4):33–44, 1987.
34. P. Neittaanmäki and D. Tiba. A steepest descent method for the approximation of the boundary control in two-phase Stefan problem. *Mathematica (Cluj)*, 29(2):157–167, 1987.
35. J. Haslinger, P. Neittaanmäki, T. Tiihonen, and K. Kaarna. Optimal shape design and unilateral boundary value problems. I. *J. Optimal Control Appl. Methods*, 9:127–144, 1988.
36. J. Haslinger, P. Neittaanmäki, T. Tiihonen, and A. Kaarna. Optimal shape design and unilateral boundary value problems. II. *J. Optimal Control Appl. Methods*, 9:145–163, 1988.
37. E. Laitinen and P. Neittaanmäki. On numerical simulation of the continuous casting process. *J. Engrg. Math.*, 22:335–354, 1988.
38. E. Laitinen and P. Neittaanmäki. On numerical solution of the problem connected with the control of the secondary cooling in the continuous casting process. *Control Theory Adv. Tech.*, 4:285–305, 1988.
39. E. Laitinen and P. Neittaanmäki. Metallin jatkuvavaluprosessin simulointi ja säätö (Simulation and control of the continuous steel casting). *Arkhimedes*, 4:206–220, 1988. (In Finnish).
40. M. Křížek and P. Neittaanmäki. On $O(h^4)$ -superconvergence of piecewise bilinear FE-approximations. *Mat. Apl. Comput.*, 8:49–61, 1989.

41. C. Marinov and P. Neittaanmäki. Global delay time for general distributed networks with applications to timing analysis of digital MOS integrated circuits. *COMPEL*, 8:17–37, 1989.
42. M. Křížek and P. Neittaanmäki. On time-harmonic Maxwell equations with nonhomogeneous conductivities: Solvability and FE-approximation. *Apl. Mat.*, 34:480–499, 1989.
43. S. Kaijaluoto, P. Neittaanmäki, and J. Ruhtila. Comparison of different solution algorithms for sparse linear equations arising from flowsheeting problems. *Computers Chem. Engrg.*, 13:433–439, 1989.
44. C. A. Marinov and P. Neittaanmäki. Asymptotical convergence evaluation for a parabolic problem arising in circuit theory. *Z. Angew. Math. Mech.*, 70:344–347, 1990.
45. C. A. Marinov and P. Neittaanmäki. A delay time bound for distributed parameter circuits with bipolar transistors. *Internat. J. Circuit Theory Appl.*, 18:99–106, 1990.
46. E. Laitinen and P. Neittaanmäki. On FEM-based simulation and application to solidification process. *Physica Scripta*, T33:86–90, 1990.
47. X.-C. Tai and P. Neittaanmäki. Parallel finite element splitting-up method for parabolic problems. *Numer. Methods Partial Differential Equations*, 7:209–225, 1991.
48. T. Lu, P. Neittaanmäki, and X.-C. Tai. A parallel splitting up method and its application to Navier–Stokes equations. *Appl. Math. Lett.*, 4:25–29, 1991.
49. P. Neittaanmäki. Computer aided optimal structural design. *Surveys Math. Indust.*, 1(3):173–215, 1991.
50. J. Haslinger, V. Horák, P. Neittaanmäki, and K. Salmenjoki. Identification of critical curves. II. Discretization and numerical realization. *Appl. Math.*, 36(5):380–391, 1991.
51. T. Lu, P. Neittaanmäki, and Tai X.-C. A parallel splitting-up method for partial differential equations and its applications to Navier–Stokes equations. *RAIRO Modél. Math. Anal. Numér.*, 26:673–708, 1992.
52. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. On FE-grid relocation in solving unilateral boundary value problems by FEM. *Appl. Math.*, 37:105–122, 1992.

53. M. Křížek, P. Neittaanmäki, and M. Vondrák. A nontraditional approach for solving the Neumann problem by the finite element method. *Mat. Apl. Comput.*, 11(1):31–40, 1992.
54. X.-C. Tai and P. Neittaanmäki. Error estimates for numerical identification of distributed parameters. *J. Comput. Math., Suppl. Issue*:66–78, 1992.
55. T. Männikkö, P. Neittaanmäki, and D. Tiba. A rapid method for the identification of the free boundary in two-phase Stefan problems. *IMA J. Numer. Anal.*, 14(3):411–420, 1994.
56. Yu. Kuznetsov, P. Neittaanmäki, and P. Tarvainen. Block relaxation methods for algebraic obstacle problems with M-matrices. *East-West J. Numer. Math.*, 2:75–89, 1994.
57. P. Neittaanmäki, S. Repin, and V. Rivkind. Discontinuous finite element approximations for functionals with linear growth. *East-West J. Numer. Math.*, 2(3):211–228, 1994.
58. V. Barbu, P. Neittaanmäki, and A. Niemistö. Approximating optimal control problems governed by variational inequalities. *Numer. Funct. Anal. Optim.*, 15:489–502, 1994.
59. V. Barbu, P. Neittaanmäki, and A. Niemistö. A penalty method for the identification of nonlinear elliptic differential operator. *Numer. Funct. Anal. Optim.*, 15:503–530, 1994.
60. P. Di Barba, A. Kladas, P. Neittaanmäki, M. Rudnicki, and A. Savini. Applications of global optimization strategies to the optimal shape design of a transformer winding. *Adv. Engrg. Softw.*, 19:121–125, 1994.
61. P. Neittaanmäki, V. Rivkind, and G. Seregin. A dual finite element approach for stresses of elasto-perfectly plastic bodies. *Math. Comp.*, 64(212):1455–1462, 1995.
62. L. Liu, M. Křížek, and P. Neittaanmäki. Higher order finite element approximation of a quasilinear elliptic boundary value problem of a non-monotone type. *Appl. Math.*, 41(6):467–478, 1996.
63. T. Kärkkäinen, P. Neittaanmäki, and A. Niemistö. Numerical methods for nonlinear inverse problems. *J. Comput. Appl. Math.*, 74:231–244, 1996. TICAM Symposium (Austin, TX, 1995).
64. V. Arnăutu and P. Neittaanmäki. Discretization estimates for an elliptic control problem. *Numer. Funct. Anal. Optim.*, 19:431–464, 1998.

65. E. Heikkola, Yu. A. Kuznetsov, P. Neittaanmäki, and J. Toivanen. Fictitious domain methods for the numerical solution of two-dimensional scattering problems. *J. Comput. Phys.*, 145:89–109, 1998.
66. I. Faragó, S. Korotov, and P. Neittaanmäki. Finite element analysis for the heat conduction equation with the third boundary condition. *Annales Univ. Sci. Budapest. Eötvös Sect. Math.*, 41:181–193, 1998.
67. S. Korotov, M. Křížek, and P. Neittaanmäki. Weakened acute type condition for tetrahedral triangulations and the discrete maximum principle. *Math. Comp.*, 70(233):107–119, 2001.
68. P. Neittaanmäki and S. I. Repin. A posteriori error estimates for boundary-value problems related to the biharmonic operator. *East-West J. Numer. Math.*, 9(2):157–178, 2001.
69. A. Yu. Kokotov, P. Neittaanmäki, and B. A. Plamenevskii. Problems of diffraction by a cone: Asymptotic behavior of the solutions near the vertex. *Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI)*, 259(Kraev. Zadachi Mat. Fiz. i Smezh. Vopr. Teor. Funkts. 30):122–144, 297–298, 1999. (In Russian; translation in *J. Math. Sci. (New York)*, 109(5):1894–1910, 2002).
70. S. Korotov, P. Neittaanmäki, and S. Repin. A posteriori error estimation of goal-oriented quantities by the superconvergence patch recovery. *J. Numer. Math.*, 11(1):33–59, 2003.
71. I. Faragó, S. Korotov, and P. Neittaanmäki. Galerkin approximations for the linear parabolic equation with the third boundary condition. *Appl. Math.*, 48(2):111–128, 2003.
72. M. Frolov, P. Neittaanmäki, and S. I. Repin. Guaranteed functional error estimates for the Reissner–Mindlin plate problem. *J. Math. Sci. (N. Y.)*, 132(4):553–561, 2006.
73. E. Gorshkova, A. Mahalov, P. Neittaanmäki, and S. Repin. A posteriori error estimates for viscous flow problems with rotation. *J. Math. Sci. (N. Y.)*, 142(1):1749–1762, 2007.
74. P. Neittaanmäki, S. Repin, and P. Turchyn. New a posteriori error indicator in terms of linear functionals for linear elliptic problems. *Russian J. Numer. Anal. Math. Modelling*, 23(1):77–87, 2008.
75. I. Anjam, O. Mali, A. Muzalevsky, P. Neittaanmäki, and S. Repin. A posteriori error estimates for a Maxwell type problem. *Russian J. Numer. Anal. Math. Modelling*, 24(5):395–408, 2009.

76. P. Neittaanmäki and S. Repin. A posteriori error majorants for approximations of the evolutionary Stokes problem. *J. Numer. Math.*, 18(2):119–134, 2010.
77. N. Banichuk, J. Jeronen, P. Neittaanmäki, and T. Tuovinen. Dynamic behaviour of an axially moving plate undergoing small cylindrical deformation submerged in axially flowing ideal fluid. *J. Fluids Structures*, 27(7):986–1005, 2011. doi: 10.1016/j.jfluidstructs.2011.07.004.
78. T. Puurtinen, P. Neittaanmäki, and L. Baskin. Numerical simulation of low temperature thermal conductance of corrugated nanofibers. *Phys. E: Low-dimen. Syst. Nanostruct.*, 44(7–8):1189–1195, 2012. doi: 10.1016/j.physe.2012.01.009.
79. P. Neittaanmäki, B. A. Plamenevskii, and O. V. Sarafanov. Radiation and scattering in domains with periodic waveguides under slow stabilization of characteristics of a medium. *J. Math. Sci.*, 184(3):331–361, 2012.
80. G. A. Leonov, M. A. Kiseleva, N. V. Kuznetsov, and P. Neittaanmäki. Hidden oscillations in drilling systems: Torsional vibrations. *J. Appl. Nonlin. Dyn.*, 2(1):83–94, 2013. doi: 10.5890/JAND.2012.09.006.
81. L. M. Baskin, M. Kabardov, P. Neittaanmäki, B. A. Plamenevskii, and O. V. Sarafanov. Asymptotic and numerical study of resonant tunneling in two-dimensional quantum waveguides of variable cross section. *Comput. Math. Math. Phys.*, 53(11):1664–1683, 2013.
82. P. Neittaanmäki, S. Repin, and J. Valdman. Estimates of deviations from exact solutions for elasticity problems with nonlinear boundary conditions. *Russian J. Numer. Anal. Math. Modelling*, 28(6):597–630, 2013. doi: 10.1515/rnam-2013-0033.
83. L. Baskin, M. Kabardov, P. Neittaanmäki, and O. Sarafanov. Asymptotic and numerical study of electron flow spin polarization in 2D waveguides of variable cross-section in the presence of magnetic field. *Math. Methods Appl. Sci.*, 37(7):1072–1092, 2014. doi: 10.1002/mma.2889.
84. N. Banichuk, S. Ivanova, P. Neittaanmäki, and T. Tuovinen. Reliable estimates in the anisotropic heat conduction problems. *J. Uncertainty Anal. Appl.*, 2, 19, 2014. doi: 10.1186/s40467-014-0019-z.
85. S. Matculevich, P. Neittaanmäki, and S. Repin. A posteriori error estimates for time-dependent reaction-diffusion problems based on the Payne-Weinberger inequality. *Discrete Contin. Dyn. Syst.*, 35(6):2659–2677, 2015. doi: 10.3934/dcds.2015.35.2659.

86. V. Zheludev, I. Pölönen, N. Neittaanmäki-Perttu, A. Averbuch, P. Neittaanmäki, M. Grönroos, and H. Saari. Delineation of malignant skin tumors by hyperspectral imaging using diffusion maps dimensionality reduction. *Biomed. Signal Process. Control*, 16:48–60, 2015. doi: 10.1016/j.bspc.2014.10.010.

3.4 Book sections, chapters in research books

1. J. Leskinen, F. Neri, and P. Neittaanmäki. Memetic variation local search vs. life-time learning in electrical impedance tomography. In *Applications of Evolutionary Computing*, volume 5484 of *Lecture Notes in Computer Science*, pages 615–624. Springer, Berlin, 2009.
2. R. Kuoremäki, K. Ahde, A. Heinonen, J. Multanen, and P. Neittaanmäki. Feasibility of mobile health for rehabilitation – pilot study in Finland. In M. Jordanova and F. Lievens, editors, *Global Telemedicine and eHealth Updates: Knowledge Resources*, Vol. 5, 2012, pages 507–511. International Society for Telemedicine & eHealth (ISfTeH), Grimbergen, 2012.
3. S. Matculevich, P. Neittaanmäki, and S. Repin. Guaranteed error bounds for a class of Picard-Lindelöf iteration methods. In S. Repin, T. Tiihonen, and T. Tuovinen, editors, *Numerical Methods for Differential Equations, Optimization, and Technological Problems*, volume 27 of *Computational Methods in Applied Sciences*, pages 175–189. Springer, Berlin, 2013.
4. A. Averbuch, P. Neittaanmäki, and V. Zheludev. Inversion of the heat equation by a block based algorithm using spline wavelet packets. In S. Repin, T. Tiihonen, and T. Tuovinen, editors, *Numerical Methods for Differential Equations, Optimization, and Technological Problems*, volume 27 of *Computational Methods in Applied Sciences*, pages 219–236. Springer, Berlin, 2013.
5. P. Neittaanmäki and S. Repin. Two-sided guaranteed estimates of the cost functional for optimal control problems with elliptic state equations. In R. Hoppe, editor, *Optimization with PDE Constraints: ESF Networking Program 'OPTPDE'*, volume 101 of *Lecture Notes in Computational Science and Engineering*, pages 325–342. Springer, Berlin, 2014.
6. I. Anjam, O. Mali, P. Neittaanmäki, and S. Repin. A unified approach to measuring accuracy of error indicators. In W. Fitzgibbon, Y. Kuznetsov, P. Neittaanmäki, and O. Pironneau, editors, *Modeling, Simulation and Optimization for Science and Technology*, volume 34 of *Computational*

Methods in Applied Sciences, pages 1–22. Springer, Dordrecht, 2014. doi: 10.1007/978-94-017-9054-3_1.

7. G. Wolf, A. Averbuch, and P. Neittaanmäki. Parameter rating by diffusion gradient. In W. Fitzgibbon, Y. Kuznetsov, P. Neittaanmäki, and O. Pironneau, editors, Modeling, Simulation and Optimization for Science and Technology, volume 34 of Computational Methods in Applied Sciences, pages 225–248. Springer, Dordrecht, 2014. doi:10.1007/978-94-017-9054-3_13.
8. M. Kiseleva, N. Kuznetsov, G. Leonov, and P. Neittaanmäki. Drilling systems: Stability and hidden oscillations. In T. Machado, D. Baleanu, and A. Luo, editors, Discontinuity and Complexity in Nonlinear Physical Systems, volume 6 of Nonlinear Systems and Complexity, pages 287–304. Springer, 2014. doi: 10.1007/978-3-319-01411-1_15.

3.5 Conference proceedings

1. J. Haslinger and P. Neittaanmäki. On the method of penalization in design optimization of systems governed by some unilateral boundary value problems. In K. H. Hoffmann and W. Krabs, editors, Optimal Control of Partial Differential Equations (Oberwolfach, 1982), number 68 in Internat. Schriftenreihe Numer. Math., pages 110–126, Basel, 1984. Birkhäuser.
2. P. Neittaanmäki and M. Křížek. Superconvergence of the finite element schemes arising from the use of averaged gradients. In I. Babuška and O. C. Zienkiewicz, editors, Proc. of Int. Conf. on Accuracy Estimates and Adaptive Refinements in Finite Element Computations (Lisbon, 1984), pages 169–178, 1984.
3. P. Neittaanmäki and M. Křížek. Conforming FE-method for obtaining the gradient of a solution to the poisson equation. In W. Hackbusch, editor, Efficient Solutions of Elliptic Systems (Kiel, 1984), number 10 in Notes Numer. Fluid Mech., pages 74–86, Braunschweig, 1984. Vieweg.
4. P. Neittaanmäki and D. Tiba. On the finite element approximation of the boundary control for two-phase Stefan problems. In A. Bensoussan and J. L. Lions, editors, Analysis and Optimization of Systems (Nice, 1984), Part 1, number 62 in Lecture Notes in Control and Inform. Sci., pages 356–370, Berlin, 1984. Springer.
5. P. Neittaanmäki and D. Tiba. On the approximation of the boundary control of the two-phase Stefan problem. In Proc. of 23rd IEEE Conference on Decision and Control (Las Vegas, NV, 1984), pages 1705–1708. IEEE, 1984.

6. P. Neittaanmäki and K. Ruotsalainen. On the finite element approximation of a bifurcation problem for sine-Gordon-type equation. In Proc. of the 10th International Conference on Nonlinear Oscillations (Varna, 1984), pages 698–701, Varna, 1985. Publishing House of the Bulgarian Acad. Sci.
7. J. Haslinger and P. Neittaanmäki. Shape optimization of an elastic body in contact with rigid foundation. In C. A. Brebbia, editor, Variational Methods in Engineering (Southampton, 1985), pages 6–31–6–40, Berlin, 1985. Springer.
8. P. Neittaanmäki. On the control of cooling during continuous casting. In R. W. Levis and K. Morgan, editors, Numerical Methods in Thermal Problems (Swansea, 1985), Vol. 1, pages 240–250. Pineridge Press, 1985.
9. C. A. Marinov and P. Neittaanmäki. Delay time predicting for distributed parameters circuits. In Proc. of 6th Internat. Conf. on Control Systems and Computer Science (Bucharest, 1985), pages 100–104, Bucharest, 1985. Polytechnical Institute of Bucharest, Dept. of Control and Computers.
10. P. Koikkalainen, E. Laitinen, S. Louhenkilpi, P. Neittaanmäki, and L. Holappa. FE-modelling of continuous casting problem. In Computational Mechanics '86: Theory and Applications (Tokyo, 1986), Vol. 1, 2, pages III 29–III 35, Tokyo, 1986. Springer.
11. J. Haslinger and P. Neittaanmäki. Structural optimization in elastic perfectly plastic punch problem. In Computational Mechanics '86: Theory and Applications (Tokyo, 1986), Vol. 1, 2, pages X77–X81, Tokyo, 1986. Springer.
12. C. A. Marinov, P. Neittaanmäki, and V. Hara. Signal delay in general distributed networks. In Proc. of the 30th Conference on Electronics, Telecommunications, Automation and Nuclear Engineering (ETAN, Herceg-Novi, 1986), Vol. III, pages 35–43, Beograd, 1986.
13. P. Neittaanmäki. On the optimal cooling of steel during continuous casting. In Proc. of 12th IFIP Conference on System Modelling and Optimization, number 84 in Lecture Notes in Control and Inform. Sci., pages 637–646. Springer, 1986.
14. C. A. Marinov and P. Neittaanmäki. Delay time for general distributed networks with application to timing analysis of digital MOS integrated circuits. In K. Board and D. R. J. Owen, editors, Proc. of Simulation of Semiconductor Devices and Processes (Swansea, 1986), pages 322–336, Swansea, 1986. Pineridge Press.

15. P. Koikkalainen, N. Asano, and P. Neittaanmäki. Numerical modelling of material properties in mushy zone. In Proc. of JSME Contr. of Strength of Materials, No 860–10,11, 1986, Kyoto. JSME, 1986. (In Japanese).
16. P. Neittaanmäki and M. Křížek. Post-processing of a finite element scheme with linear elements. In W. Hackbusch and K. Witsch, editors, Numerical Techniques in Continuum Mechanics (Kiel 1986), number 16 in Notes on Numerical Fluid Mechanics, pages 69–83, Brawschweg, 1987. F. Vieweg.
17. P. Neittaanmäki. On the control of the secondary cooling in the continuous casting process. In K. H. Hoffmann and W. Krabs, editors, Optimal Control of Partial Differential Equations II: Theory and Applications (Oberwolfach, 1986), number 78 in ISNM, pages 161–177, Basel, 1987. Birkhäuser.
18. I. Lasiecka, J. Sokolowski, and P. Neittaanmäki. Finite element approximations of the wave equation with Dirichlet boundary data defined on a bounded domain in R^2 . In F. Kappel, K. Kunisch, and W. Schappacher, editors, Proc. of Internat. Conf. on Distributed Parameter Systems (Vorau, 1986), number 102 in Control & Inf. Sci., pages 216–233. Springer, 1987.
19. C. A. Marinov and P. Neittaanmäki. Asymptotic properties for distributed networks. In Proc. of 7th Internat. Conf. on Control Systems and Computer Science (Bucharest, 1987), Vol. I, pages 313–318. Polytech. Inst. of Bucharest, 1987.
20. P. Neittaanmäki, V. Hara, and C.A. Marinov. Numerical approach for signal delay in general distributed networks. In J. J. Miller, editor, Numerical Analysis of Semiconductor Devices and Integrated Circuits (NASECODE V, Dublin, 1987), number 10 in Boole Press Conf. Ser., pages 307–312, Dún Laoghaire, 1987. Boole.
21. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. On optimal mesh design for FEM in unilateral boundary value problems. In J. R. Whiteman, editor, The Mathematics of Finite Elements and Applications VI (Uxbridge, 1987), pages 103–113, London, 1988. Academic Press.
22. P. Koikkalainen and P. Neittaanmäki. A model for carbon macrosegregation. In S. N. Atluri and G. Yagawa, editors, Proc. of the International Conference on Computational Engineering Science (Atlanta, GA, 1988), pages 18i1–18i2. Springer, 1988.
23. P. Neittaanmäki, V. Hara, and C. A. Marinov. Numerical approach for signal delay in general distributed networks. In Proc. of IEEE International

- Symposium on Circuits and Systems (Helsinki, 1988), Vol. 2, pages 1353–1358, 1988.
24. E. Laitinen, T. Männikkö, P. Neittaanmäki, and S. Louhenkilpi. On the real-time control of the continuous casting process. In *Heat Transfer in Phase-Change Problems, Extended Abstracts of the Eurotherm Seminar 6* (Delft, 1988), pages 40–42. Delft University of Technology, 1988.
 25. P. Neittaanmäki and M. Křížek. On $O(h^4)$ -superconvergence of piecewise bilinear FE-approximations. In I. Marek, editor, *Proc. of the Second International Symposium on Numerical Analysis* (Prague, 1987), number 107 in *Teubner-Texte Math.*, pages 250–255, Leipzig, 1988. Teubner.
 26. P. Neittaanmäki and T. Seidman. Optimal solutions for a free boundary problem for crystal growth. In F. Kappel, K. Kunich, and W. Schappacher, editors, *Control and Estimation of Distributed Parameter System* (Vorau, 1988), number 91 in *Internat. Ser. Numer. Math.*, pages 323–334, Basel, 1989. Birkhäuser.
 27. T. Männikkö and P. Neittaanmäki. On the real-time control of the secondary cooling in the continuous casting process. In *Proc. of the 17th IASTED International Symposium on Simulation and Modelling* (Lugano, 1989), pages 52–55, Zürich, 1989. Acta Press.
 28. T. Männikkö, E. Laitinen, and P. Neittaanmäki. Real-time simulator for the continuous casting process. In R. W. Lewis and K. Morgan, editors, *Proc. of the 6th International Conference on Numerical Methods in Thermal Problems, Vol VI, Part 2*, pages 309–319, Swansea, 1989. Pineridge Press.
 29. C. A. Marinov, P. Neittaanmäki, and V. Hara. A consistent model for the wiring delay of the MOS inverter. In *Proc. of European Conference on Circuit Theory and Design (ECCTD)*, number 308 in *Conference Publication*, pages 89–93, 1989.
 30. K. Salmenjoki and P. Neittaanmäki. Comparison of various techniques for shape design sensitivity analysis. In C. A. Brebbia and S. Hernandez, editors, *Proc. of the 1st International Conference on Computer Aided Optimum Design of Structures* (Southampton, 1989), pages 367–377, Southampton, 1989. Computational Mechanical Publications.
 31. X.-C. Tai, P. Neittaanmäki, and Q. Lin. A parallel FE-splitting-up method for solving a class of parabolic partial differential equations. In *Proc. of Symposium of Scientific Software* (Peking), page 12 p., 1989.

32. D. Tiba, R. Mäkinen, P. Neittaanmäki, and T. Tiihonen. A boundary control approach to an optimal shape design problem. In M. Amouroux and A. El Jai, editors, *Control of Distributed Parameter Systems (Perpignan, 1989)*, pages 415–418, Oxford, 1989. Pergamon Press.
33. P. Neittaanmäki. On the methods for optimal shape design. In J. Manley, S. McKee, and D. H. Owens, editors, *Proc. of the Third European Conference on Mathematics in Industry (Glasgow, 1988)*, number 5 in European Consort. *Math. Indust.*, pages 453–459, Stuttgart, 1990. Teubner.
34. E. Laitinen and P. Neittaanmäki. On the real-time simulation and control of continuous casting process. In J. Manley, S. McKee, and D. H. Owens, editors, *Proc. of the Third European Conference on Mathematics in Industry (Glasgow, 1988)*, number 5 in European Consort. *Math. Indust.*, pages 401–408, Stuttgart, 1990. Teubner.
35. P. Neittaanmäki and A. Stachurski. Solving some optimal control problems using the barrier penalty function method. In H. J. Sebastian and K. Tammer, editors, *System Modelling and Optimization (Leipzig, 1989)*, number 143 in *Lecture Notes in Control and Inform. Sci.*, pages 358–367, Berlin, 1990. Springer.
36. T. Männikkö, E. Laitinen, and P. Neittaanmäki. Real-time simulation and control system for the continuous casting process. In H. J. Sebastian and K. Tammer, editors, *System Modelling and Optimization (Leipzig, 1989)*, number 143 in *Lecture Notes in Control and Inform. Sci.*, pages 809–817, Berlin, 1990. Springer.
37. M. Mäkelä and P. Neittaanmäki. Nonsmooth optimization in optimal shape design. In G. Feichtinger, R. F. Hartl, W. H. Janko, W. E. Katzenburg, and A. Stepan, editors, *Proc. of the XV Symposium on Operations Research (Vienna, 1990)*, number 64 in *Methods of Operation Research*, pages 95–104, Frankfurth am Main, 1991. Anton Hain.
38. E. Laitinen, S. Louhenkilpi, T. Männikkö, and P. Neittaanmäki. Automatic secondary cooling control for the continuous casting process of steel. In Hj. Wacker and W. Zulehner, editors, *Proc. of the Fourth ECMI conference*, pages 109–121, 1991.
39. X.-C. Tai and P. Neittaanmäki. On the numerical solution of the distributed parameter identification problem. In F. Kappel and K. Kunisch, editors, *Estimation and Control of Distributed Parameter Systems (Vorau, 1990)*, number 100 in *Internat. Ser. Numer. Math.*, pages 317–330, Basel, 1991. Birkhäuser.

40. P. Neittaanmäki. On the control of the domain in variational inequalities. In V. Barbu, editor, *Differential Equations and Control Theory* (Iași, 1990), number 250 in Pitman Res. Notes Math. Ser., pages 228–247, Harlow, 1991. Longman Sci. Tech.
41. X.-C. Tai and P. Neittaanmäki. A linear approach for the nonlinear distributed parameter identification problem. In *Numerical Methods for Free Boundary Problems* (Jyväskylä, 1990), pages 401–411, Basel, 1991. Birkhäuser.
42. P. Neittaanmäki and D. Tiba. Optimal control for state constrained two-phase Stefan problems. In *Numerical Methods for Free Boundary Problems* (Jyväskylä, 1990), pages 309–316, Basel, 1991. Birkhäuser.
43. S. Jensen, E. Laitinen, P. Neittaanmäki, and T. Seidman. Computational stability of an initially radial solution of a growth/dissolution problem in a nonradial implementation. In *Numerical Methods for Free Boundary Problems* (Jyväskylä, 1990), pages 191–201, Basel, 1991. Birkhäuser.
44. D. Tiba, P. Neittaanmäki, and R. Mäkinen. A fixed domain approach in an optimal shape design problem. In *Proc. of 13th IMACS World Congress on Computation and Applied Mathematics* (Dublin, 1991), pages 1658–1660, Dublin, 1991. Criterion Press.
45. C. A. Marinov, P. Neittaanmäki, and J.-P. Santanen. Both sided estimates for distributed structures arising in MOS interconnections. In E. Lindberg, editor, *Proc. of 10th European Conference on Circuit Theory and Design* (ECCTD-91, Copenhagen), pages 543–549, 1991.
46. R. Mäkinen, P. Neittaanmäki, and D. Tiba. On a fixed domain approach for a shape optimization problem. In W. F. Ames and P. J. van der Houwen, editors, *Computational and Applied Mathematics II: Differential Equations* (Dublin, 1991), pages 317–326, Amsterdam, 1992. North-Holland.
47. C. A. Marinov, P. Neittaanmäki, and J.-P. Santanen. Bounds for the solution of a system of parabolic equations arising in circuit theory. In W. F. Ames and P. J. van der Houwen, editors, *Computational and Applied Mathematics II: Differential Equations* (Dublin, 1991), pages 185–192, Amsterdam, 1992. North-Holland.
48. Yu. Kuznetsov and P. Neittaanmäki. Overlapping domain decomposition methods for the simplified Dirichlet–Signorini problem. In W. F. Ames and P. J. van der Houwen, editors, *Computational and Applied Mathematics II: Differential Equations* (Dublin, 1991), pages 297–306, Amsterdam, 1992. North-Holland.

49. C. A. Marinov, P. Neittaanmäki, and J.-P. Santanen. Signal delay for generally interconnected distributed structures. In J. J. H. Miller, editor, Proc. of the Eighth International Conference on the Numerical Analysis of Semiconductor Devices and Integrated Circuits (NASECODE VIII, Vienna, 1992), pages 131–132. Boole Press, 1992.
50. R. Mäkinen, P. Neittaanmäki, and D. Tiba. A boundary controllability approach in optimal shape design. In Boundary Control and Boundary Variation (Sophia-Antipolis, 1990), number 178 in Lecture Notes in Control and Inform. Sci., pages 309–320, Berlin, 1992. Springer.
51. R. A. E. Mäkinen and P. Neittaanmäki. Sensitivity analysis for shape optimization problems in structural and fluid mechanics. In J. Herskovits, editor, Structural optimization 93 – The World Congress on Optimal Design of Structural Systems (Rio de Janeiro, 1993), Vol. II, pages 173–180. Associação Brasileira de Ciências Mecânicas, 1993.
52. C. A. Marinov and P. Neittaanmäki. Bounds for distributed parameter trees. In 1993 IEEE International Symposium on Circuits and Systems (ISCAS 1993, Chicago, IL), Vol. 3 – VLSI and Parallel Processing, pages 1551–1554. IEEE, 1993.
53. Yu. A. Kuznetsov, P. Neittaanmäki, and P. Tarvainen. Overlapping domain decomposition methods for the obstacle problem. In A. Quarteroni, J. Periaux, Y. A. Kuznetsov, and O. B. Widlund, editors, Domain Decomposition Methods in Science and Engineering (Como, 1992), number 157 in Contemp. Math., pages 271–277, Providence, RI, 1994. Amer. Math. Soc.
54. C. A. Marinov and P. Neittaanmäki. Bounds for the delay time in distributed and lumped type RC tree networks. In D. Auvergne and A. Rubio, editors, Prof. of the Fourth International Workshop on Power and Timing Modeling, Optimization and Simulation (PATMOS'94, Barcelona), pages 50–58. Polytechnical University of Catalonia (UPC), 1994.
55. A. Murgu, P. Neittaanmäki, and V. Hara. A neural networks approach of routing/flow control for communication networks. In Proceedings of IEEE World Congress on Computational Intelligence (ICNN'94, Orlando, FL), pages 2667–2672, 1994.
56. P. Neittaanmäki, V. Rivkind, and V. Zheludev. A wavelet transform based on periodic splines and finite element method. In Finite Element Methods. Fifty Years of the Courant Element (Jyväskylä, 1993), number 164 in Lecture

Notes in Pure and Applied Mathematics, pages 325–334, New York, 1994. Marcel Dekker.

57. Yu. A. Kuznetsov, P. Neittaanmäki, and P. Tarvainen. Schwarz methods for obstacle problems with convection-diffusion operators. In D. E. Keyes and J. Xu, editors, *Domain Decomposition Methods in Scientific and Engineering Computing* (University Park, PA, 1993), number 180 in *Contemp. Math.*, pages 251–256, Providence, RI, 1995. Amer. Math. Soc.
58. P. Neittaanmäki, V. Rivkind, and L. Rukhovets. Mathematical and numerical modeling of pollution of lakes. In G. F. Carey, editor, *Finite Element Modeling of Environmental Problems. Surface and Subsurface Flow and Transport*, pages 209–227, Chichester, 1995. J. Wiley & Sons.
59. J. Raitamäki, P. Viljamaa, H. Koivo, and P. Neittaanmäki. Basis functions in soft computing and in finite element method. In *Proc. of EUFIT'96 – Fourth European Congress on Intelligent Techniques and Soft Computing* (Aachen, 1996), Vol. 1, pages 115–119, 1996.
60. P. Viljamaa, J. Raitamäki, P. Neittaanmäki, and H. Koivo. Basis functions in soft computing. In *Proc. of WAC'96 – Second World Automation Congress* (Montpellier), 1996.
61. Yu. Kuznetsov, P. Neittaanmäki, and P. Tarvainen. Overlapping block methods for obstacle problems with convection-diffusion operators. In M. C. Ferris and J. S. Pang, editors, *Complementarity and Variational Problems* (Baltimore, MD, 1995), pages 165–180, Philadelphia, PA, 1997. SIAM.
62. R. A. E. Mäkinen, P. Neittaanmäki, J. Periaux, M. Sefrioui, and J. Toivanen. Parallel genetic solution for multiobjective MDO. In P. Schiano, A. Ecer, J. Periaux, and N. Satofuka, editors, *Parallel Computational Fluid Dynamics: Algorithms and Results Using Advanced Computers* (Parallel CFD'96, Capri), pages 352–359, Amsterdam, 1997. North-Holland.
63. X.-C. Tai and P. Neittaanmäki. A pointwise error estimate for distributed parameter identification. In D. Bainov and V. Covachev, editors, *7th Int. Coll. on Differential Equations*, pages 455–468. VSP International Science Publishers, 1997.
64. M. Rudnicki, P. Neittaanmäki, and T. Jokinen. Neural network simulation of a pulse magnetiser for magnetising permanent magnets. In *Proc. International Symposium on Theoretical Electrical Engineering (ISTET'97, Palermo)*, pages 396–399, 1997.

65. R. A. E. Mäkinen, P. Neittaanmäki, J. Periaux, and J. Toivanen. A genetic algorithm for multiobjective design optimization in aerodynamics and electromagnetics. In K. D. Papailiou, D. Tsahalis, J. Periaux, and C. Hirsch, editors, *Computational Fluid Dynamics '98, Vol. 2: Invited Lectures, Minisymposia and Special Technological Sessions of the Fourth ECCOMAS Conference (Athens, 1998)*, pages 418–422, Chichester, 1998. J. Wiley & Sons.
66. M. Křížek and P. Neittaanmäki. Bibliography on superconvergence. In *Finite Element Methods: Superconvergence, Post-processing and A Posteriori Estimates (Jyväskylä, 1996)*, number 196 in *Lecture Notes in Pure and Appl. Math.*, pages 315–348, New York, 1998. Marcel Dekker.
67. S. Korotov, P. Neittaanmäki, and M. Křížek. On discrete maximum principle for tetrahedral elements satisfying a weakened acute type condition. In *Numerical Mathematics and Advanced Applications (ENUMATH 99, Jyväskylä)*, pages 587–592, River Edge, NJ, 2000. World Scientific.
68. M. Křížek, L. Liu, and P. Neittaanmäki. On harmonic and biharmonic finite elements. In *Finite Element Methods. Three-Dimensional Problems (Jyväskylä, 2000)*, number 15 in *GAKUTO International Series. Mathematical Sciences and Applications*, pages 143–151, Tokyo, 2001. Gakkōtoshō.
69. V. E. Grikurov, E. Heikkola, P. Neittaanmäki, and B. A. Plamenevskii. Scattering matrices and surface waves for diffraction gratings. In *Computational and Mathematical Methods on Science and Engineering (CMMSE-2002, Alicante)*, Vol. II, pages 158–165, 2003.
70. V. O. Kalvine, P. Neittaanmäki, and B. A. Plamenevskii. On a method of search for trapped modes in domains with cylindrical ends. In *Mathematical and Numerical Aspects of Wave Propagation (WAVES 2003, Jyväskylä)*, pages 469–474, Berlin, 2003. Springer.
71. M. Frolov, P. Neittaanmäki, and S. Repin. On computational properties of a posteriori error estimates based upon the method of duality error majorants. In M. Feistauer, V. Dolejší, P. Knobloch, and K. Najzar, editors, *Numerical Mathematics and Advanced Applications (ENUMATH 2003, Prague)*, pages 346–357, Berlin, 2004. Springer-Verlag.
72. S. Korotov, P. Neittaanmäki, and S. Repin. A posteriori error estimation in terms of linear functionals for boundary value problems of elliptic type. In M. Feistauer, V. Dolejší, P. Knobloch, and K. Najzar, editors, *Numerical Mathematics and Advanced Applications (ENUMATH 2003, Prague)*, pages 587–595, Berlin, 2004. Springer-Verlag.

73. S. Korotov, P. Neittaanmäki, and S. Repin. A posteriori error estimation of “quantities of interest” for the elliptic-type boundary value problems. In *Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä)*, Vol II, Jyväskylä, 2004. University of Jyväskylä. CD-ROM.
74. M. Frolov, P. Neittaanmäki, and S. Repin. On practical implementation of duality error majorants for boundary-value problems arising in the theory of plates. In *Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä)*, Vol II, Jyväskylä, 2004. University of Jyväskylä. CD-ROM.
75. E. Gorshkova, P. Neittaanmäki, and S. Repin. Comparative study of the a posteriori error estimators for the Stokes problem. In *Numerical Mathematics and Advanced Applications (ENUMATH 2005, Santiago de Compostela)*, pages 252–259, Berlin, 2006. Springer.
76. S. Matyukevich and P. Neittaanmäki. Nonstationary Maxwell system with nonhomogeneous boundary conditions in domains with conical points. In *Proceedings of the St. Petersburg Mathematical Society*, Vol. XIII, number 222 in *Amer. Math. Soc. Transl. Ser. 2*, pages 111–162, Providence, RI, 2008. Amer. Math. Soc.
77. N. V. Kuznetsov, G. A. Leonov, S. M. Seledzhi, and P. Neittaanmäki. Analysis and design of computer architecture circuits with controllable delay line. In *Proceedings of the 6th International Conference on Informatics in Control, Automation and Robotics*, Vol. 3 – Signal Processing, Systems Modeling and Control (ICINCO 2009, Milan), pages 221–224, Setúbal, 2009. INSTICC Press.
78. P. Neittaanmäki and S. Repin. Computable error indicators for approximate solutions of elliptic problems. In J. Eberhardsteiner, C. Hellmich, H. A. Mang, and J. Périaux, editors, *ECCOMAS Multidisciplinary Jubilee Symposium: New Computational Challenges in Materials, Structures, and Fluids*, number 14 in *Computational Methods in Applied Sciences*, pages 203–218, Berlin, 2009. Springer.
79. O. J. Mali, P. J. Neittaanmäki, and S. I. Repin. Estimates for error generated by indeterminate elasticity tensor. In J. C. F. Pereira, A. Sequeira, and J. M. C. Pereira, editors, *Proceedings of the 5th European Conference on Computational Fluid Dynamics (ECCOMAS CFD 2010)*, 2010. CD-ROM, 6 p.
80. I. B. Anjam, O. J. Mali, P. J. Neittaanmäki, and S. I. Repin. New indicators of approximation errors for problems in continuum mechanics. In J. C. F. Pereira, A. Sequeira, and J. M. C. Pereira, editors, *Proceedings of the 5th*

European Conference on Computational Fluid Dynamics (ECCOMAS CFD 2010), 2010. CD-ROM, 10 p.

81. G. A. Leonov, S. M. Seledzhi, N. V. Kuznetsov, and P. Neittaanmäki. Asymptotic analysis of phase control system for clocks in multiprocessor arrays. In Proceedings of the 7th International Conference on Informatics in Control, Automation and Robotics (ICINCO 2010, Funchal), Vol. 3, pages 99–102. INSTICC Press, 2010.
82. N. V. Kuznetsov, G. A. Leonov, P. Neittaanmäki, S. M. Seledzhi, M. V. Yuldashev, and R. V. Yuldashev. Nonlinear analysis of phase-locked loop. In Proceedings of the 4th IFAC Workshop on Periodic Control Systems (Antalya, 2010), Periodic Control Systems, Volume # 4, Part # 1, pages 34–38. International Federation of Automatic Control, 2010. doi: 10.3182/20100826-3-TR-4016.00010.
83. A. Averbuch, V. Zheludev, and P. Neittaanmäki. Regularized matching pursuit for deconvolution. In A. Khong and F. Oggier, editors, Proceedings of the 9th International Conference on Sampling Theory and Applications (SampTA 2011), Singapore, 2011. Nanyang Technological University. <http://sampta2011.ntu.edu.sg/SampTA2011Proceedings/papers/Th2R06.1-P0141.pdf>.
84. A. Averbuch, V. Zheludev, and P. Neittaanmäki. Block based algorithms for images deconvolution. In A. Khong and F. Oggier, editors, Proceedings of the 9th International Conference on Sampling Theory and Applications (SampTA 2011), Singapore, 2011. Nanyang Technological University. <http://sampta2011.ntu.edu.sg/SampTA2011Proceedings/papers/Mo5R02.4-P0143.pdf>.
85. N. Kuznetsov, G. Leonov, P. Neittaanmäki, S. Seledzhi, M. Yuldashev, and R. Yuldashev. Highfrequency analysis of phase-locked loop and phase detector characteristic computation. In J. Ferrier, A. Bernard, O. Gusikhin, and K. Madani, editors, Proceedings of the 8th International Conference on Informatics in Control, Automation and Robotics, pages 272–278, Setubal, 2011. SciTePress. doi: 10.5220/0003522502720278.
86. N. V. Kuznetsov, G. A. Leonov, P. Neittaanmäki, S. M. Seledzhi, M. V. Yuldashev, and R. V. Yuldashev. Nonlinear mathematical models of Costas loop for general waveform of input signal. In NSC 2012 – 4th IEEE International Conference on Nonlinear Science and Complexity (Budapest, 2012), pages 75–80. IEEE, 2012. doi: 10.1109/NSC.2012.6304729.

87. M. A. Kiseleva, N. V. Kuznetsov, G. A. Leonov, and P. Neittaanmäki. Drilling systems failures and hidden oscillations. In NSC 2012 – 4th IEEE International Conference on Nonlinear Science and Complexity (Budapest, 2012), pages 109–112. IEEE, 2012. doi: 10.1109/NSC.2012.6304736.
88. M. Kiseleva, N. Kuznetsov, G. Leonov, P. Neittaanmäki, S. M. Seledzhi, M. V. Yuldashev, and R. V. Yuldashev. Hidden oscillations in drilling system actuated by induction motor. In Proceedings of the 5th IFAC Workshop on Periodic Control Systems (Caen, 2013), Periodic Control Systems, Volume # 5, Part # 1, pages 86–89. International Federation of Automatic Control, 2013. doi: 10.3182/20130703-3-FR-4039.00028.
89. N. V. Kuznetsov, G. A. Leonov, P. Neittaanmäki, S. M. Seledzhi, M. V. Yuldashev, and R. V. Yuldashev. Phase-frequency domain model of Costas loop with mixer discriminator. In J.-L. Ferrier, O. Gusikhin, K. Madani, and J. Sasiadek, editors, ICINCO 2013 – Proceedings of the 10th International Conference on Informatics in Control, Automation and Robotics, Volume 1 (Reykjavík, 2013), pages 427–433. SciTePress, 2013.
90. A. Averbuch, P. Neittaanmäki, and V. Zheludev. Spline-based frames for image restoration. In W. Henkel, editor, Proceedings of the 10th International Conference on Sampling Theory and Applications (SampTA 2013), pages 464–467. EURASIP, 2013.
91. N. Kuznetsov, O. Kuznetsova, G. Leonov, P. Neittaanmäki, M. Yuldashev, and R. Yuldashev. Simulation of nonlinear models of QPSK Costas loop in MatLab Simulink. In 2014 6th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT), pages 66–71. IEEE, 2014. doi: 10.1109/ICUMT.2014.7002080.

4 Computer science

4.1 Conference proceedings

1. N. Kuznetsov, G. Leonov, P. Neittaanmäki, S. Seledzhi, M. Yuldashev, and R. Yuldashev. Highfrequency analysis of phase-locked loop and phase detector characteristic computation. In J. Ferrier, A. Bernard, O. Gusikhin, and K. Madani, editors, Proceedings of the 8th International Conference on Informatics in Control, Automation and Robotics, pages 272–278, Setubal, 2011. SciTePress. doi: 10.5220/0003522502720278.
2. N. V. Kuznetsov, G. A. Leonov, P. Neittaanmäki, S. M. Seledzhi, M. V. Yuldashev, and R. V. Yuldashev. Nonlinear mathematical models of Costas

- loop for general waveform of input signal. In NSC 2012 – 4th IEEE International Conference on Nonlinear Science and Complexity (Budapest, 2012), pages 75–80. IEEE, 2012. doi: 10.1109/NSC.2012.6304729.
3. N. V. Kuznetsov, G. A. Leonov, P. Neittaanmäki, S. M. Seledzhi, M. V. Yuldashev, and R. V. Yuldashev. Phase-frequency domain model of Costas loop with mixer discriminator. In J.-L. Ferrier, O. Gusikhin, K. Madani, and J. Sasiadek, editors, ICINCO 2013 – Proceedings of the 10th International Conference on Informatics in Control, Automation and Robotics, Volume 1 (Reykjavík, 2013), pages 427–433. SciTePress, 2013.
 4. N. Kuznetsov, O. Kuznetsova, G. Leonov, P. Neittaanmäki, M. Yuldashev, and R. Yuldashev. Simulation of nonlinear models of QPSK Costas loop in MatLab Simulink. In 2014 6th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT), pages 66–71. IEEE, 2014. doi: 10.1109/ICUMT.2014.7002080.
 5. A. Algawi, P. Neittaanmäki, N. Zaidenberg, and T. Parisinos. In kernel implementation of RSA routines. In B. Endicott-Popovsky, editor, Proceedings of the 2nd International Conference on Cloud Security Management ICCSM-2014, pages 149–153. Academic Conferences and Publishing International, 2014.
 6. E. Tamir, N. Zaidenberg, and P. Neittaanmäki. TrulyTrusted operating system environment. In B. Endicott-Popovsky, editor, Proceedings of the 2nd International Conference on Cloud Security Management ICCSM-2014, pages 154–157. Academic Conferences and Publishing International, 2014.
 7. N. Kuznetsov, O. Kuznetsova, G. A. Leonov, P. Neittaanmäki, M. Yuldashev, and R. Yuldashev. Limitations of the classical phase-locked loop analysis. In 2015 IEEE International Symposium on Circuits and Systems (ISCAS), pages 533–536. IEEE, 2015. doi: 10.1109/ISCAS.2015.7168688.
 8. K. D. Alexandrov, N. Kuznetsov, G. A. Leonov, P. Neittaanmäki, and S. M. Seledzhi. Pull-in range of the classical PLL with impulse signals. In F. Breitenacker, A. Kugi, and I. Troch, editors, MATHMOD 2015: Proceedings of the 8th Vienna International Conference on Mathematical Modelling, volume 48(1) of IFAC Proceedings Volumes (IFAC-PapersOnline), pages 562–567. IFAC, 2015. doi: 10.1016/j.ifacol.2015.05.090.
 9. K. D. Alexandrov, N. Kuznetsov, G. A. Leonov, P. Neittaanmäki, and S. M. Seledzhi. Pull-in range of the PLL-based circuits with proportionally-integrating filter. In A. Bobtsov, S. Kolyubin, A. Pyrkin, and A. Fradkov, editors, MICNON 2015: Proceedings of the 1st IFAC Conference on

Modelling, Identification and Control of Nonlinear Systems (Saint Petersburg, 2015), volume 48(11) of IFAC Proceedings Volumes (IFAC-PapersOnline), pages 720–724. IFAC, 2015. doi: 10.1016/j.ifacol.2015.09.274.

10. K. D. Alexandrov, N. Kuznetsov, G. A. Leonov, P. Neittaanmäki, M. Yuldashev, and R. Yuldashev. Computation of the lock-in ranges of phase-locked loops with PI filter. In 6th IFAC International Workshop on Periodic Control Systems (Eindhoven, 2016). To appear.

5 Mechanics of deformable solids

5.1 Books

1. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape design: Theory and applications. J. Wiley & Sons, Chichester, 1988.
2. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape, material and topology design. J. Wiley & Sons, Chichester, 2nd edition, 1996.
3. A. Kravchuk and P. Neittaanmäki. Variational and quasi-variational inequalities in mechanics. Springer, Berlin, 2007.
4. N. V. Banichuk and P. J. Neittaanmäki. Structural optimization with uncertainties, volume 162 of Solid Mechanics and Its Applications. Springer, Berlin, 2010.
5. O. Mali, P. Neittaanmäki, and S. Repin. Accuracy verification methods: Theory and algorithms, volume 32 of Computational Methods in Applied Sciences. Springer, Berlin, 2014.
6. N. Banichuk, J. Jeronen, P. Neittaanmäki, T. Saksa, and T. Tuovinen. Mechanics of moving materials, volume 207 of Solid Mechanics and Its Applications. Springer, Berlin, 2014.

5.2 Edited books

1. J. Kinnunen and P. Neittaanmäki, editors. Tietokoneavusteinen matematiikka (Computer Aided Mathematics) (Jyväskylä, 1991), number 53 in Ber. Univ. Jyväskylä Math. Inst., 1992. (Mainly in Finnish).
2. P. Neittaanmäki, editor. Industrial Mathematics, Selected lectures presented in Finnish Mathematicians Days 11.–12.1.1993, number 1 in Reports on

Applied Mathematics and Computing. University of Jyväskylä, Department of Mathematics, 1993.

3. R. A. E. Mäkinen and P. Neittaanmäki, editors. Proceedings of the 5th Finnish Mechanics Days, number 3 in Report Series. University of Jyväskylä, Department of Mathematics, Laboratory of Scientific Computing, 1994.
4. P. Neittaanmäki, T. Rossi, K. Majava, and O. Pironneau, editors. Proc. of the 4th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä), Vol I. University of Jyväskylä, 2004. CD-ROM.
5. R. Mäkinen, P. Neittaanmäki, T. Tuovinen, and K. Valpe, editors. Proceedings of the 10th Finnish Mechanics Days, number A1/2009 in Reports of the Department of Mathematical Information Technology, Series A, Collections. University of Jyväskylä, 2009. (Partially in Finnish).
6. P. Neittaanmäki, S. Repin, and T. Tuovinen, editors. Mathematical modeling and optimization of complex structures, volume 40 of Computational Methods in Applied Sciences, Dordrecht, 2016. Springer. doi: 10.1007/978-3-319-23564-6.

5.3 Journal articles

1. P. Neittaanmäki. Randwertaufgaben zur Plattengleichung. Ann. Acad. Sci. Fenn. Ser. A I Math. Dissertationes, 16:71 pp., 1978. MR 80b:35065.
2. P. Neittaanmäki. Dirichletsche und Neumannsche Randwertaufgaben in der statischen Elastizitätstheorie. Ann. Acad. Sci. Fenn. Ser. A I Math., 5:227–236, 1980. MR 82m:35044.
3. J. Haslinger and P. Neittaanmäki. On the existence of optimal shapes in contact problems. Numer. Funct. Anal. Optim., 7(2–3):107–124, 1984/85.
4. P. Neittaanmäki and T. Tiihonen. Mathematical programming methods for an optimal shape design problem. Z. Angew. Math. Mech., 64:T339–T340, 1984.
5. P. Neittaanmäki and T. Tiihonen. Sensitivity analysis for a class of shape control problems. Z. Angew. Math. Mech., 65:T317–T319, 1985.
6. J. Haslinger, V. Horák, and P. Neittaanmäki. Shape optimization in contact problems with friction. Numer. Funct. Anal. Optim., 8(5–6):557–587, 1985/86.

7. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. Shape optimization in contact problems based on penalization of the state inequality. *Apl. Mat.*, 31(1):54–77, 1986.
8. P. Neittaanmäki. Computational mechanics in Finland. *IACM-Bulletin*, 2:3–5, 1986.
9. J. Haslinger and P. Neittaanmäki. On optimal shape design of systems governed by mixed Dirichlet–Signorini boundary value problems. *Math. Methods Appl. Sci.*, 8(2):157–181, 1986.
10. J. Haslinger and P. Neittaanmäki. On the existence of optimal shapes in contact problems – perfectly plastic bodies. *Comput. Mech.*, 1(4):293–299, 1986.
11. J. Haslinger and P. Neittaanmäki. Shape optimization in contact problems. approximation and numerical realization. *RAIRO Modél. Math. Anal. Numér.*, 21(2):269–291, 1987.
12. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. Sensitivity analysis for some optimal shape design problem. *Z. Angew. Math. Mech.*, 67:T200–T203, 1987.
13. J. Haslinger, P. Neittaanmäki, T. Tiihonen, and K. Kaarna. Optimal shape design and unilateral boundary value problems. I. *J. Optimal Control Appl. Methods*, 9:127–144, 1988.
14. J. Haslinger, P. Neittaanmäki, T. Tiihonen, and A. Kaarna. Optimal shape design and unilateral boundary value problems. II. *J. Optimal Control Appl. Methods*, 9:145–163, 1988.
15. P. Neittaanmäki and K. Salmenjoki. Sensitivity analysis for optimal shape design problems. *Structural Optimization*, 1:241–251, 1989.
16. J. Haslinger, V. Horák, P. Neittaanmäki, and K. Salmenjoki. Identification of critical curves. II. Discretization and numerical realization. *Appl. Math.*, 36(5):380–391, 1991.
17. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. Sensitivity analysis for discretized unilateral plane elasticity problem. *Finite Elem. Anal. Des.*, 12:13–25, 1992.
18. P. Neittaanmäki. Design sensitivity analysis for state-constrained structural design problems. *Mech. Structures Mach.*, 20:433–458, 1992.

19. Yu. Kuznetsov, P. Neittaanmäki, and P. Tarvainen. Block relaxation methods for algebraic obstacle problems with M-matrices. *East-West J. Numer. Math.*, 2:75–89, 1994.
20. P. Neittaanmäki, V. Rivkind, and G. Seregin. A dual finite element approach for stresses of elasto-perfectly plastic bodies. *Math. Comp.*, 64(212):1455–1462, 1995.
21. P. Neittaanmäki and S. I. Repin. A posteriori error estimates for boundary-value problems related to the biharmonic operator. *East-West J. Numer. Math.*, 9(2):157–178, 2001.
22. M. Frolov, P. Neittaanmäki, and S. I. Repin. Guaranteed functional error estimates for the Reissner–Mindlin plate problem. *J. Math. Sci. (N. Y.)*, 132(4):553–561, 2006.
23. N. Banichuk and P. Neittaanmäki. On structural optimization with incomplete information. *Mech. Based Des. Struct. Mach.*, 35(1):75–95, 2007.
24. A. S. Kravchuk and P. Neittaanmäki. Solution of contact problems using the boundary element method. *Prikl. Mat. Mekh.*, 71(2):329–339, 2007. (In Russian; translation in *J. Appl. Math. Mech.*, 71(2):295–304, 2007).
25. N. Banichuk, J. Jeronen, P. Neittaanmäki, and T. Tuovinen. On the instability of an axially moving elastic plate. *Internat. J. Solids Structures*, 47(1):91–99, 2010.
26. N. Banichuk, J. Jeronen, P. Neittaanmäki, and T. Tuovinen. Dynamic behaviour of an axially moving plate undergoing small cylindrical deformation submerged in axially flowing ideal fluid. *J. Fluids Structures*, 27(7):986–1005, 2011. doi: 10.1016/j.jfluidstructs.2011.07.004.
27. N. Banichuk, S. Ivanova, P. Neittaanmäki, and T. Tuovinen. Reliable estimates in the anisotropic heat conduction problems. *J. Uncertainty Anal. Appl.*, 2, 19, 2014. doi: 10.1186/s40467-014-0019-z.

5.4 Conference proceedings

1. J. Haslinger and P. Neittaanmäki. On the method of penalization in design optimization of systems governed by some unilateral boundary value problems. In K. H. Hoffmann and W. Krabs, editors, *Optimal Control of Partial Differential Equations (Oberwolfach, 1982)*, number 68 in *Internat. Schriftenreihe Numer. Math.*, pages 110–126, Basel, 1984. Birkhäuser.
2. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. On optimal shape design of an elastic body on a rigid foundation. In J. R. Whiteman, editor, *The*

- Mathematics of Finite Elements and Applications (Uxbridge, 1984), V, pages 555–562, London, 1985. Academic Press.
3. P. Neittaanmäki and T. Tiihonen. Sensitivity analysis for some control problems. In Proc. of International Conference on Numerical Methods and Applications (Sofia, 1984), pages 451–458, 1985.
 4. J. Haslinger and P. Neittaanmäki. Shape optimization of an elastic body in contact with rigid foundation. In C. A. Brebbia, editor, Variational Methods in Engineering (Southampton, 1985), pages 6–31–6–40, Berlin, 1985. Springer.
 5. J. Haslinger and P. Neittaanmäki. Structural optimization in elastic perfectly plastic punch problem. In Computational Mechanics '86: Theory and Applications (Tokyo, 1986), Vol. 1, 2, pages X77–X81, Tokyo, 1986. Springer.
 6. J. Haslinger, P. Neittaanmäki, and T. Tiihonen. Shape optimization in contact problems. 1. Design of an elastic body. 2. Design of an elastic perfectly plastic body. In A. Bensoussan and J.-L. Lions, editors, Analysis and Optimization of Systems (Antibes, 1986), number 83 in Lecture Notes in Control and Inform. Sci., pages 29–39, Berlin, 1986. Springer.
 7. J. Haslinger, P. Neittaanmäki, and D. Tiba. On state constrained optimal shape design problems. In K. H. Hoffmann and W. Krabs, editors, Optimal Control of Partial Differential Equations II: Theory and Applications (Oberwolfach, 1986), number 78 in ISNM, pages 109–122, Basel, 1987. Birkhäuser.
 8. J. Haslinger and P. Neittaanmäki. On the design of the optimal covering of an obstacle. In J. P. Zolesio, editor, Boundary Control and Boundary Variations (Nice, 1986), number 100 in Lecture Notes in Comput. Sci., pages 192–211, Berlin, 1988. Springer.
 9. J. Haslinger, P. Neittaanmäki, and K. Salmenjoki. On optimal mesh design for FEM in unilateral boundary value problems. In J. R. Whiteman, editor, The Mathematics of Finite Elements and Applications VI (Uxbridge, 1987), pages 103–113, London, 1988. Academic Press.
 10. J. Haslinger and P. Neittaanmäki. Optimal shape design in contact problems of elasticity. In F. Kuhnert and B. Silbermann, editors, Proc. of the 9th Conference on Problems and Methods in Mathematical Physics (Karl-Marx-Stadt, 1988), number 111 in Teubner-Texte Math., pages 84–93, Leipzig, 1989. Teubner.
 11. P. Neittaanmäki. Optimal shape design in contact problems. In H. A. Eschenauer and G. Thierauf, editors, Discretization methods and structural

optimization – Procedures and applications. Proc. of a GAMM-seminar (Siegen, FRG, 1988), number 42 in Lecture Notes in Engineering, pages 247–254, Berlin, 1989. Springer.

12. J. Haslinger and P. Neittaanmäki. On one identification problem in linear elasticity. In K.-H. Hoffmann and J. Sprekels, editors, *Free Boundary Value Problems (Oberwolfach, 1989)*, number 95 in *Internat. Ser. Numer. Math.*, pages 66–84, Basel, 1990. Birkhäuser.
13. N. Banichuk and P. Neittaanmäki. Incompleteness of information and reliable optimal design. In P. Neittaanmäki, J. Périaux, and T. Tuovinen, editors, *Evolutionary and Deterministic Methods for Design, Optimization and Control: Applications to Industrial and Societal Problems (EUROGEN 2007, Jyväskylä)*, pages 29–38, Barcelona, 2008. CIMNE.
14. O. J. Mali, P. J. Neittaanmäki, and S. I. Repin. Estimates for error generated by indeterminate elasticity tensor. In J. C. F. Pereira, A. Sequeira, and J. M. C. Pereira, editors, *Proceedings of the 5th European Conference on Computational Fluid Dynamics (ECCOMAS CFD 2010)*, 2010. CD-ROM, 6 p.
15. I. B. Anjam, O. J. Mali, P. J. Neittaanmäki, and S. I. Repin. New indicators of approximation errors for problems in continuum mechanics. In J. C. F. Pereira, A. Sequeira, and J. M. C. Pereira, editors, *Proceedings of the 5th European Conference on Computational Fluid Dynamics (ECCOMAS CFD 2010)*, 2010. CD-ROM, 10 p.
16. M. A. Kiseleva, N. V. Kuznetsov, G. A. Leonov, and P. Neittaanmäki. Drilling systems failures and hidden oscillations. In *NSC 2012 – 4th IEEE International Conference on Nonlinear Science and Complexity (Budapest, 2012)*, pages 109–112. IEEE, 2012. doi: 10.1109/NSC.2012.6304736.
17. M. Kiseleva, N. Kuznetsov, G. Leonov, P. Neittaanmäki, S. M. Seledzhi, M. V. Yuldashev, and R. V. Yuldashev. Hidden oscillations in drilling system actuated by induction motor. In *Proceedings of the 5th IFAC Workshop on Periodic Control Systems (Caen, 2013)*, *Periodic Control Systems, Volume # 5, Part # 1*, pages 86–89. International Federation of Automatic Control, 2013. doi: 10.3182/20130703-3-FR-4039.00028.
18. N. Banichuk, A. Barsuk, J. Jeronen, P. Neittaanmäki, and T. Tuovinen. On bifurcation analysis of implicitly given functionals in the theory of elastic stability. In P. Neittaanmäki, S. Repin, and T. Tuovinen, editors, *Mathematical Modeling and Optimization of Complex Structures, volume 40 of Computational Methods in Applied Sciences*, pages 175–188. Springer, Dordrecht, 2016. doi: 10.1007/978-3-319-23564-6_11.

6 Fluid mechanics

6.1 Book

1. J. Haslinger and P. Neittaanmäki. Finite element approximation for optimal shape design: Theory and applications. J. Wiley & Sons, Chichester, 1988.

6.2 Edited books

1. P. Neittaanmäki and L. Rivkind, editors. Analysis and approximation of boundary value problems. A memorial meeting dedicated to Prof. Valery Rivkind, number B8/2000 in Reports of the Department of Mathematical Information Technology, Series B, Scientific Computing. University of Jyväskylä, 2000.
2. P. Neittaanmäki, T. Rossi, S. Korotov, E. Oñate, J. Périaux, and D. Knörzer, editors. Proc. of the 4th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä), Vol II. University of Jyväskylä, 2004. CD-ROM.

6.3 Journal articles

1. T. Lu, P. Neittaanmäki, and X.-C. Tai. A parallel splitting up method and its application to Navier–Stokes equations. *Appl. Math. Lett.*, 4:25–29, 1991.
2. E. Gorshkova, A. Mahalov, P. Neittaanmäki, and S. Repin. A posteriori error estimates for viscous flow problems with rotation. *J. Math. Sci. (N. Y.)*, 142(1):1749–1762, 2007.

7 Optics, electromagnetic theory

7.1 Books

1. M. Křížek and P. Neittaanmäki. Finite element approximation of variational problems and applications, volume 50 of Pitman Monographs and Surveys in Pure and Applied Mathematics. Longman Scientific & Technical, Harlow; Copubl. J. Wiley & Sons, New York, 1990.
2. P. Neittaanmäki, M. Rudnicki, and A. Savini. Inverse problems and optimal design in electricity and magnetism. Oxford University Press, 1996.

3. M. Křížek and P. Neittaanmäki. *Mathematical and numerical modelling in electrical engineering: Theory and applications*. Kluwer Academic Publishers, Dordrecht, 1996. With a foreword by I. Babuška.

7.2 Edited books

1. P. Neittaanmäki, editor. *Proceedings of the Minisymposium on Numerical Methods for Semiconductors and Magnets (Jyväskylä, 1988)*, number 42 in *Ber. Univ. Jyväskylä Math. Inst.*, 1988.
2. G. C. Cohen, E. Heikkola, P. Joly, and P. Neittaanmäki, editors. *Mathematical and Numerical Aspects of Wave Propagation (WAVES 2003, Jyväskylä)*, Berlin, 2003. Springer.

7.3 Journal articles

1. P. Neittaanmäki and R. Picard. Error estimates for the finite element approximation to a Maxwell-type boundary value problem. *Numer. Funct. Anal. Optim.*, 2:267–285, 1980. MR 82b:78006.
2. P. Neittaanmäki and J. Saranen. Finite element approximation of electromagnetic fields in three dimensional space. *Numer. Funct. Anal. Optim.*, 2:487–506, 1980. MR 82b:78005.
3. P. Neittaanmäki and R. Picard. On the finite element method for time-harmonic acoustic boundary value problems. *Comput. Math. Appl.*, 7:127–138, 1981. MR 82g:76031.
4. P. Neittaanmäki and J. Saranen. Fehlerasymptotik für die Finite-Element Approximation einer akustischen Randwertaufgabe. *Z. Angew. Math. Mech.*, 61:T298–T300, 1981.
5. P. Neittaanmäki and J. Saranen. On the finite element approximation for Maxwell's problem in polynomial domains of the plane. *Applicable Anal.*, 12:73–83, 1981. MR 82h:65085.
6. P. Neittaanmäki and J. Saranen. Semi-discrete Galerkin approximation method applied to initial boundary value problems for Maxwell's equations in anisotropic, inhomogeneous media. *Proc. Roy. Soc. Edinburgh Sect. A*, 89:125–133, 1981. MR 82h:65070.
7. P. Neittaanmäki and J. Saranen. Finite element approximation of vector fields given by curl and divergence. *Math. Methods Appl. Sci.*, 3:328–335, 1981. MR 83e:65193.

8. P. Neittaanmäki and J. Saranen. On finite element approximation of the gradient for solution of Poisson equation. *Numer. Math.*, 37:333–337, 1981. MR 82h:65086.
9. P. Neittaanmäki and J. Saranen. A mixed finite element method for the heat flow problem. *BIT*, 21:342–346, 1981. MR 82m:65092.
10. P. Neittaanmäki and R. Picard. On the convergence of the finite element approximation of eigenfrequencies and eigenvectors to Maxwell's boundary value problem. *Ann. Acad. Sci. Fenn. Ser. A I Math.*, 6:255–271, 1981.
11. P. Neittaanmäki. On the numerical solution of Helmholtz's equation by different finite element methods. *Z. Angew. Math. Mech.*, 63(5):T364–T366, 1983.
12. M. Křížek and P. Neittaanmäki. On the validity of Friedrichs' inequalities. *Math. Scand.*, 54:17–26, 1984.
13. J. Haslinger and P. Neittaanmäki. On different finite element methods for approximating the gradient of the solution to the Helmholtz equation. *Comput. Methods Appl. Mech. Engrg.*, 42:131–148, 1984.
14. M. Křížek and P. Neittaanmäki. Finite element approximation for a div-rot system with mixed boundary conditions in non-smooth plane domains. *Apl. Mat.*, 29:272–285, 1984.
15. M. Křížek and P. Neittaanmäki. Solvability of a first order system in three-dimensional non-smooth domains. *Apl. Mat.*, 30:307–315, 1985.
16. M. Křížek and P. Neittaanmäki. Internal FE approximation of spaces of divergence-free functions in three-dimensional domains. *Internat. J. Numer. Methods Fluids*, 6(11):811–817, 1986.
17. M. Křížek and P. Neittaanmäki. On superconvergence techniques. *Acta Appl. Math.*, 9(3):175–198, 1987.
18. M. Křížek and P. Neittaanmäki. On a global superconvergence of the gradient of linear triangular elements. *J. Comput. Appl. Math.*, 18(2):221–233, 1987.
19. M. Křížek and P. Neittaanmäki. On time-harmonic Maxwell equations with nonhomogeneous conductivities: Solvability and FE-approximation. *Apl. Mat.*, 34:480–499, 1989.
20. S. Korotov, M. Křížek, and P. Neittaanmäki. Weakened acute type condition for tetrahedral triangulations and the discrete maximum principle. *Math. Comp.*, 70(233):107–119, 2001.

21. I. Anjam, O. Mali, A. Muzalevsky, P. Neittaanmäki, and S. Repin. A posteriori error estimates for a Maxwell type problem. *Russian J. Numer. Anal. Math. Modelling*, 24(5):395–408, 2009.

7.4 Conference proceedings

1. P. Neittaanmäki and M. Křížek. Conforming FE-method for obtaining the gradient of a solution to the poisson equation. In W. Hackbusch, editor, *Efficient Solutions of Elliptic Systems (Kiel, 1984)*, number 10 in *Notes Numer. Fluid Mech.*, pages 74–86, Braunschweig, 1984. Vieweg.

8 Classical thermodynamics, heat transfer

8.1 Books

1. M. Mäkelä and P. Neittaanmäki. *Nonsmooth optimization: Analysis and algorithms with applications to optimal control*. World Scientific Publishing Co., River Edge, NJ, 1992. 18
2. P. Neittaanmäki and D. Tiba. *Optimal control of nonlinear parabolic systems: Theory, algorithms and applications*. Marcel Dekker, New York, 1994.

8.2 Edited book

1. J. Kinnunen and P. Neittaanmäki, editors. *Tietokoneavusteinen matematiikka (Computer Aided Mathematics) (Jyväskylä, 1991)*, number 53 in *Ber. Univ. Jyväskylä Math. Inst.*, 1992. (Mainly in Finnish).

8.3 Journal articles

1. P. Neittaanmäki and D. Tiba. On the approximation of the boundary control in two-phase Stefan-type problems. *Control Cybernet.*, 16(3–4):33–44, 1987.
2. P. Neittaanmäki and D. Tiba. A variational inequality approach to constrained control problems for parabolic equations. *Appl. Math. Optim.*, 17:185–201, 1988.
3. E. Laitinen and P. Neittaanmäki. On numerical simulation of the continuous casting process. *J. Engrg. Math.*, 22:335–354, 1988.
4. E. Laitinen and P. Neittaanmäki. On numerical solution of the problem connected with the control of the secondary cooling in the continuous casting process. *Control Theory Adv. Tech.*, 4:285–305, 1988.

5. E. Laitinen and P. Neittaanmäki. Metallin jatkuvavaluprosessin simulointi ja säätö (Simulation and control of the continuous steel casting). *Arkhimedes*, 4:206–220, 1988. (In Finnish).
6. E. Laitinen and P. Neittaanmäki. On FEM-based simulation and application to solidification process. *Physica Scripta*, T33:86–90, 1990.

8.4 Conference proceedings

1. P. Neittaanmäki and D. Tiba. On the finite element approximation of the boundary control for two-phase Stefan problems. In A. Bensoussan and J. L. Lions, editors, *Analysis and Optimization of Systems (Nice, 1984)*, Part 1, number 62 in *Lecture Notes in Control and Inform. Sci.*, pages 356–370, Berlin, 1984. Springer.
2. P. Neittaanmäki and D. Tiba. On the approximation of the boundary control of the two-phase Stefan problem. In *Proc. of 23rd IEEE Conference on Decision and Control (Las Vegas, NV, 1984)*, pages 1705–1708. IEEE, 1984.
3. P. Neittaanmäki. On the optimal cooling of steel during continuous casting. In *Proc. of 12th IFIP Conference on System Modelling and Optimization*, number 84 in *Lecture Notes in Control and Inform. Sci.*, pages 637–646. Springer, 1986.
4. P. Koikkalainen, N. Asano, and P. Neittaanmäki. Numerical modelling of material properties in mushy zone. In *Proc. of JSME Contr. of Strength of Materials*, No 860–10,11, 1986, Kyoto. JSME, 1986. (In Japanese).
5. P. Neittaanmäki. On the control of the secondary cooling in the continuous casting process. In K. H. Hoffmann and W. Krabs, editors, *Optimal Control of Partial Differential Equations II: Theory and Applications (Oberwolfach, 1986)*, number 78 in *ISNM*, pages 161–177, Basel, 1987. Birkhäuser.
6. P. Koikkalainen and P. Neittaanmäki. A model for carbon macrosegregation. In S. N. Atluri and G. Yagawa, editors, *Proc. of the International Conference on Computational Engineering Science (Atlanta, GA, 1988)*, pages 18i1–18i2. Springer, 1988.
7. E. Laitinen, T. Männikkö, P. Neittaanmäki, and S. Louhenkilpi. On the real-time control of the continuous casting process. In *Heat Transfer in Phase-Change Problems, Extended Abstracts of the Eurotherm Seminar 6 (Delft, 1988)*, pages 40–42. Delft University of Technology, 1988.
8. P. Neittaanmäki and T. Seidman. Optimal solutions for a free boundary problem for crystal growth. In F. Kappel, K. Kunich, and W. Schappacher,

- editors, *Control and Estimation of Distributed Parameter System* (Vorau, 1988), number 91 in *Internat. Ser. Numer. Math.*, pages 323–334, Basel, 1989. Birkhäuser.
9. T. Männikkö, E. Laitinen, and P. Neittaanmäki. Real-time simulator for the continuous casting process. In R. W. Lewis and K. Morgan, editors, *Proc. of the 6th International Conference on Numerical Methods in Thermal Problems, Vol VI, Part 2*, pages 309–319, Swansea, 1989. Pineridge Press.
 10. E. Laitinen and P. Neittaanmäki. On the real-time simulation and control of continuous casting process. In J. Manley, S. McKee, and D. H. Owens, editors, *Proc. of the Third European Conference on Mathematics in Industry (Glasgow, 1988)*, number 5 in *European Consort. Math. Indust.*, pages 401–408, Stuttgart, 1990. Teubner.
 11. T. Männikkö, E. Laitinen, and P. Neittaanmäki. Real-time simulation and control system for the continuous casting process. In H. J. Sebastian and K. Tammer, editors, *System Modelling and Optimization (Leipzig, 1989)*, number 143 in *Lecture Notes in Control and Inform. Sci.*, pages 809–817, Berlin, 1990. Springer.
 12. E. Laitinen, S. Louhenkilpi, T. Männikkö, and P. Neittaanmäki. Automatic secondary cooling control for the continuous casting process of steel. In H. J. Wacker and W. Zulehner, editors, *Proc. of the Fourth ECMI conference*, pages 109–121, 1991.
 13. D. Tiba, P. Neittaanmäki, and R. Mäkinen. Controllability-type properties for elliptic systems and applications. In F. Kappel and K. Kunisch, editors, *Estimation and Control of Distributed Parameter Systems (Vorau, 1990)*, number 100 in *Internat. Ser. Numer. Math.*, pages 341–353, Basel, 1991. Birkhäuser.
 14. P. Neittaanmäki and D. Tiba. Optimal control for state constrained two-phase Stefan problems. In *Numerical Methods for Free Boundary Problems (Jyväskylä, 1990)*, pages 309–316, Basel, 1991. Birkhäuser.
 15. S. Jensen, E. Laitinen, P. Neittaanmäki, and T. Seidman. Computational stability of an initially radial solution of a growth/dissolution problem in a nonradial implementation. In *Numerical Methods for Free Boundary Problems (Jyväskylä, 1990)*, pages 191–201, Basel, 1991. Birkhäuser.

9 Quantum theory

9.1 Book

1. L. Baskin, P. Neittaanmäki, B. A. Plamenevskii, and O. Sarafanov. Resonant tunneling: Quantum waveguides of variable cross-section, asymptotics, numerics, and applications. Springer, Cham, 2015.

9.2 Journal articles

1. V. E. Grikurov, M. A. Lyalinov, P. Neittaanmäki, and B. A. Plamenevskii. On surface waves in diffraction gratings. *Math. Methods Appl. Sci.*, 23(17):1513–1535, 2000.
2. V. E. Grikurov, E. Heikkola, P. Neittaanmäki, and B. A. Plamenevskii. On a method for searching for surface waves in diffraction gratings. *Dokl. Akad. Nauk*, 385(4):465–469, 2002. (In Russian).
3. V. E. Grikurov, E. Heikkola, P. Neittaanmäki, and B. A. Plamenevskii. On computation of scattering matrices and on surface waves in diffraction gratings. *Numer. Math.*, 94(2):269–288, 2003.
4. V. Kalvine and P. Neittaanmäki. Dissipative elliptic problems in domains with cylindrical ends, scattering matrices, and radiation conditions. *J. Math. Sci.*, 120(2):1093–1108, 2004.
5. L. Baskin, V. Grikurov, P. Neittaanmäki, and B. Plamenevskii. Quantum phenomena in the control of electron flows. *Tech. Physics Letters*, 30(8):650–653, 2004.
6. V. O. Kalvine, P. Neittaanmäki, and B. A. Plamenevskii. On accumulations of the point spectrum of elliptic problems in domains with cylindrical ends. *Dokl. Akad. Nauk*, 394(2):586–588, 2004.
7. V. O. Kalvine, P. Neittaanmäki, and B. A. Plamenevskii. Method for computing scattering matrices for general dissipative and self-adjoint elliptic problems in domains with cylindrical ends. *J. Math. Sci. (N.Y.)*, 122(3):3212–3245, 2004.
8. L. Baskin, P. Neittaanmäki, B. Plamenevsky, and O. Sarafanov. Asymptotic theory of resonant tunneling in 3D quantum waveguides of variable cross-section. *SIAM J. Appl. Math.*, 70(5):1542–1566, 2009/10.
9. L. M. Baskin, M. Kabardov, P. Neittaanmäki, B. A. Plamenevskii, and O. V. Sarafanov. Asymptotic and numerical study of resonant tunneling in two-

dimensional quantum waveguides of variable cross section. *Comput. Math. Math. Phys.*, 53(11):1664–1683, 2013.

10. L. Baskin, M. Kabardov, P. Neittaanmäki, and O. Sarafanov. Asymptotic and numerical study of electron flow spin polarization in 2D waveguides of variable cross-section in the presence of magnetic field. *Math. Methods Appl. Sci.*, 37(7):1072–1092, 2014. doi: 10.1002/mma.2889.

9.3 Conference proceedings

1. A. Yu. Kokotov, P. Neittaanmäki, and B. A. Plamenevskii. Neumann problem for the wave equation in a wedge. In N. N. Uraltseva, editor, *Teorija funktsij i priloženija (Theory of Functions and Applications)*, Problemy matematičeskogo analiza, Vyp. 20, pages 71–110, Novosibirsk, 2000. Nauchnaya kniga (IDMI). (In Russian).
2. V. E. Grikurov, M. A. Lyalinov, P. Neittaanmäki, and B. A. Plamenevskii. Existence criterion of surface waves in diffraction gratings. In *Digests of the 9th Biennial IEEE Conference on Electromagnetic Field Computation (CEFC-2000, Milwaukee, WI)*, Milwaukee, WI, 2000. IEEE and Marquette University.
3. V. O. Kalvine, P. Neittaanmäki, and B. A. Plamenevskii. On a method of search for trapped modes in domains with cylindrical ends. In *Mathematical and Numerical Aspects of Wave Propagation (WAVES 2003, Jyväskylä)*, pages 469–474, Berlin, 2003. Springer.

10 Operation research, mathematical programming

10.1 Books

1. M. Mäkelä and P. Neittaanmäki. *Nonsmooth optimization: Analysis and algorithms with applications to optimal control*. World Scientific Publishing Co., River Edge, NJ, 1992.
2. P. Neittaanmäki, J. Sprekels, and D. Tiba. *Optimization of elliptic systems: Theory and applications*. Springer, Berlin, 2006.

10.2 Journal articles

1. O. Bräysy, P. Nakari, W. Dullaert, and P. Neittaanmäki. An optimization approach for communal home meal delivery service: A case study. *J. Comput. Appl. Math. (JCAM)*, 232(1):46–53, 2009.

2. C. Watanabe, K. Naveed, P. Neittaanmäki, and Y. Tou. Operationalization of un-captured GDP: Innovation stream under new global mega-trends. *Tech. Soc.*, 45:58–77, 2016. doi: 10.1016/j.techsoc.2016.02.008.
3. C. Watanabe, K. Naveed, and P. Neittaanmäki. Co-evolution of three mega-trends nurtures un-captured GDP – Uber’s ride-sharing revolution. *Tech. Soc.*, 46:164–185, 2016. doi:10.1016/j.techsoc.2016.06.004.

10.3 Conference proceedings

1. T. Ruohonen, E. Leppänen, H. Lähdevaara, and P. Neittaanmäki. Selecting a new robot for the clinical laboratory by using a simulation model. In *Proceedings of the 6th EUROSIM Congress on Modelling and Simulation, 2007*. DVD.
2. R. Kuoremäki, J. Varsaluoma, T. Nousiainen, M. Kankaanranta, and P. Neittaanmäki. Improving independent physical activity with mobile solutions among aging office employees. In G. Bradley, D. Whitehouse, and G. Singh, editors, *Proceedings of the International Association for Development of the Information Society (IADIS) Multi Conference on Computer Science and Information Systems (Italy, 2011)*, Rooma, 2011. IADIS.

11 Game theory, economics, social and behavioral sciences

11.1 Journal articles

1. M. Dementieva, P. Neittaanmäki, and V. Zakharov. Time-consistency and the problem of minimal reduction. *Int. J. Math. Game Theory Algebra*, 14(4):329–342, 2004.
2. M. Dementieva, P. Neittaanmäki, and V. Zakharov. Time-consistency and the problem of minimal reduction. *Int. J. Math. Game Theory Algebra*, 15(5):581–594, 2006.
3. C. Watanabe, K. Naveed, and P. Neittaanmäki. Dependency on un-captured GDP as a source of resilience beyond economic value in countries with advanced ICT infrastructure: Similarities and disparities between Finland and Singapore. *Tech. Soc.*, 42:104–122, 2015.
4. C. Watanabe, K. Naveed, P. Neittaanmäki, and Y. Tou. Operationalization of un-captured GDP: Innovation stream under new global mega-trends. *Tech. Soc.*, 45:58–77, 2016. doi: 10.1016/j.techsoc.2016.02.008.

5. C. Watanabe, K. Naveed, and P. Neittaanmäki. Co-evolution of three mega-trends nurtures un-captured GDP – Uber’s ride-sharing revolution. *Tech. Soc.*, 46:164–185, 2016. doi:10.1016/j.techsoc.2016.06.004.

11.2 Conference proceeding

1. M. Dementieva, P. Neittaanmäki, and V. Zakharov. Time-consistent decision making in models of co-operation. In *Computational Methods in Applied Sciences and Engineering (ECCOMAS 2004, Jyväskylä)*, Vol II, Jyväskylä, 2004. University of Jyväskylä. CD-ROM.

12 Information and communication, circuits

12.1 Book

1. C. A. Marinov and P. Neittaanmäki. *Mathematical models in electrical circuits: Theory and applications*, volume 66 of *Mathematics and its Applications*. Kluwer Academic Publishers, Dordrecht, 1991.

12.2 Journal articles

1. C. A. Marinov and P. Neittaanmäki. A theory of electrical circuits with resistively coupled distributed structures: Delay time predicting. *IEEE Circuits Systems*, 35:173–183, 1988.
2. C. Marinov and P. Neittaanmäki. Global delay time for general distributed networks with applications to timing analysis of digital MOS integrated circuits. *COMPEL*, 8:17–37, 1989.
3. C. A. Marinov and P. Neittaanmäki. Asymptotical convergence evaluation for a parabolic problem arising in circuit theory. *Z. Angew. Math. Mech.*, 70:344–347, 1990.
4. C. A. Marinov and P. Neittaanmäki. A delay time bound for distributed parameter circuits with bipolar transistors. *Internat. J. Circuit Theory Appl.*, 18:99–106, 1990.
5. G. Moroşanu, C. Marinov, and P. Neittaanmäki. Well-posed nonlinear problems in integrated circuits modeling. *Circuits Systems Signal Process.*, 10:53–69, 1991.

12.3 Conference proceedings

1. C. A. Marinov and P. Neittaanmäki. Delay time predicting for distributed parameters circuits. In Proc. of 6th Internat. Conf. on Control Systems and Computer Science (Bucharest, 1985), pages 100–104, Bucharest, 1985. Polytechnical Institute of Bucharest, Dept. of Control and Computers.
2. C. A. Marinov, P. Neittaanmäki, and V. Hara. Signal delay in general distributed networks. In Proc. of the 30th Conference on Electronics, Telecommunications, Automation and Nuclear Engineering (ETAN, Herceg-Novci, 1986), Vol. III, pages 35–43, Beograd, 1986.
3. C. A. Marinov and P. Neittaanmäki. Delay time for general distributed networks with application to timing analysis of digital MOS integrated circuits. In K. Board and D. R. J. Owen, editors, Proc. of Simulation of Semiconductor Devices and Processes (Swansea, 1986), pages 322–336, Swansea, 1986. Pineridge Press.
4. C. A. Marinov and P. Neittaanmäki. Asymptotic properties for distributed networks. In Proc. of 7th Internat. Conf. on Control Systems and Computer Science (Bucharest, 1987), Vol. I, pages 313–318. Polytech. Inst. of Bucharest, 1987.
5. C. A. Marinov, P. Neittaanmäki, and V. Hara. A consistent model for the wiring delay of the MOS inverter. In Proc. of European Conference on Circuit Theory and Design (ECCTD), number 308 in Conference Publication, pages 89–93, 1989.
6. G. Moroşanu, C. A. Marinov, and P. Neittaanmäki. Well-posed nonlinear problems in the theory of electrical networks with distributed and lumped parameters. In Proc. of the 17th IASTED International Symposium on Simulation and Modelling (Lugano, 1989), pages 345–348, Zürich, 1989. Acta Press.
7. C. A. Marinov, P. Neittaanmäki, and J.-P. Santanen. Both sided estimates for distributed structures arising in MOS interconnections. In E. Lindberg, editor, Proc. of 10th European Conference on Circuit Theory and Design (ECCTD–91, Copenhagen), pages 543–549, 1991.
8. C. A. Marinov, P. Neittaanmäki, and J.-P. Santanen. Bounds for the solution of a system of parabolic equations arising in circuit theory. In W. F. Ames and P. J. van der Houven, editors, Computational and Applied Mathematics II: Differential Equations (Dublin, 1991), pages 185–192, Amsterdam, 1992. North-Holland.

9. C. A. Marinov, P. Neittaanmäki, and J.-P. Santanen. Signal delay for generally interconnected distributed structures. In J. J. H. Miller, editor, Proc. of the Eighth International Conference on the Numerical Analysis of Semiconductor Devices and Integrated Circuits (NASECODE VIII, Vienna, 1992), pages 131–132. Boole Press, 1992.
10. C. A. Marinov and P. Neittaanmäki. Bounds for distributed parameter trees. In 1993 IEEE International Symposium on Circuits and Systems (ISCAS 1993, Chicago, IL), Vol. 3 – VLSI and Parallel Processing, pages 1551–1554. IEEE, 1993.
11. C. A. Marinov and P. Neittaanmäki. Bounds for the delay time in distributed and lumped type RC tree networks. In D. Auvergne and A. Rubio, editors, Prof. of the Fourth International Workshop on Power and Timing Modeling, Optimization and Simulation (PATMOS'94, Barcelona), pages 50–58. Polytechnical University of Catalonia (UPC), 1994.
12. A. Murgu, P. Neittaanmäki, and V. Hara. A neural networks approach of routing/flow control for communication networks. In Proceedings of IEEE World Congress on Computational Intelligence (ICNN'94, Orlando, FL), pages 2667–2672, 1994.
13. V.-M. Hokkanen, G. Moroşanu, and P. Neittaanmäki. An inverse problem for the telegraph system. In Numerical Mathematics and Advanced Applications (ENUMATH 99, Jyväskylä), pages 303–307, River Edge, NJ, 2000. World Scientific.

13 Mathematics education

13.1 Journal articles

1. A. Iqbal, M. Kankaanranta, and P. Neittaanmäki. Experiences and motivations of the young for participation in virtual worlds. *Procedia – Social Behav. Sci.*, 2(2):3190–3197, 2010. doi: 10.1016/j.sbspro.2010.03.488.
2. A. Iqbal, M. Kankaanranta, and P. Neittaanmäki. Engaging learners through virtual worlds. *Procedia – Social Behav. Sci.*, 2(2):3198–3205, 2010. doi: 10.1016/j.sbspro.2010.03.489.

13.2 Conference proceedings

1. E. Jokisuu, M. Kankaanranta, and P. Neittaanmäki. Problems and barriers in information and communications technology usage among senior citizens in

Finland. In Proceedings of the 1st International Conference on Software Development for Enhancing Accessibility and Fighting Info-exclusion, pages 31–37, Vila Real, 2007. UTAD – Universidade de Trás-os-Montes e Alto Douro.

2. J. Kansanaho, J. Hämäläinen, A. Gontarenko, J. Saltiola, A. Pekkala, T. Nousiainen, and P. Neittaanmäki. USUKO – new generation school. In J. Herrington, J. Viteli, and M. Leikomaa, editors, Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2014, pages 802–806, Chesapeake, 2014. Association for the Advancement of Computing in Education.
3. M. Gavriushenko, M. Kankaanranta, and P. Neittaanmäki. Semantically enhanced decision support for learning management systems. In M. Kankanhalli, T. Li, and W. Wang, editors, Proceedings of the 2015 IEEE 9th International Conference on Semantic Computing (IEEE ICSC 2015), pages 298–305. IEEE, 2015. doi: 10.1109/ICOSC.2015.7050823.
4. T. Nousiainen, M. Kankaanranta, and P. Neittaanmäki. Design activities and contributions in the creation of ideas for educational mobile applications for school-aged children. In I. A. Sánchez and P. Isaías, editors, Proceedings of the IADIS International Conference Mobile Learning 2012 (Berlin, 2012), pages 91–98. IADIS Press, 2012.
5. J. Liimatainen, M. Häkkinen, T. Nousiainen, M. Kankaanranta, and P. Neittaanmäki. A mobile application concept to encourage independent mobility for blind and visually impaired students. In K. Miesenberger, A. Karshmer, P. Penaz, and W. Zagler, editors, Computers Helping People with Special Needs, Proceedings of the 13th International Conference ICCHP (Linz, 2012), Part II, volume 7383 of Lecture Notes in Computer Science, pages 552–559, Berlin, 2012. Springer. doi:10.1007/978-3-642-31534-3_81.

13.3 Edited books

1. J. Kinnunen and P. Neittaanmäki, editors. Tietokoneavusteinen matematiikka (Computer Aided Mathematics) (Jyväskylä, 1991), number 53 in Ber. Univ. Jyväskylä Math. Inst., 1992. (Mainly in Finnish).
2. M. Kankaanranta, P. Neittaanmäki, and P. Häkkinen, editors. Digitaalisten pelien maailmoja (Digital games' worlds). University of Jyväskylä, 2004. (In Finnish).