

Projektrelevante Publikationen Carsten Trunk

Eingereichte Arbeiten

- [64] mit J. Behrndt, P. Schmitz und G. Teschl, *Relative oscillation theory and essential spectra of Sturm–Liouville operators*, eingereicht, arXiv:2203.08938 (2022).
- [63] mit H. Gernandt, F.M. Martínez Pería und F. Philipp, *On characteristic invariants of matrix pencils and linear relations*, eingereicht, eingereicht, arXiv:2203.08296 (2022).
- [62] mit B. Ćurgus und V. Derkach, *Indefinite Sturm–Liouville operators in polar form*, eingereicht, arXiv:2101.00104 (2021).
- [61] mit J. Behrndt, P. Schmitz und G. Teschl, *Perturbations of periodic Sturm–Liouville operators*, eingereicht, arXiv:2105.13186 (2021).

Publikationen in referierten Journalen

- [60] mit H. Gernandt, *The spectrum and the Weyr characteristics of operator pencils and linear relations*, *Syphax Journal of Mathematics: Nonlinear Analysis, Operator and Systems* 73 (2021), 73–89.
- [59] mit V. Derkach und P. Schmitz, *PT-symmetric Hamiltonians as couplings of dual pairs*, in *Contributions to Mathematics and Statistics: Essays in honor of Seppo Hassi* (Hrsg. H.S.V de Snoo and H.L. Wietsma), *Acta Wasaensia* 462 (2021), 55-68.
- [58] mit D.B. J. van Rensburg, M. van Straaten und F. Theron, *Square roots of H-nonnegative matrices*, *Linear Algebra Appl.* 621 (2021), 29-49.
- [57] mit L. Leben, F. Martínez Pería, F. Philipp und Henrik Winkler, *Finite rank perturbations of linear relations and singular matrix pencils*, *Complex Anal. Oper. Theory* 15, 37 (2021).
- [56] mit H. Gernandt, *Locally finite extensions and Gesztesy-Seba realizations for the Dirac operator on a metric graph*, in *Operator Theory* (Hrsg. A. Jeribi), de Gruyter Berlin/Boston (2021), 25-54.
- [55] mit J. Giribet, M. Langer, F. Martínez Pería und F. Philipp, *Spectral enclosures for a class of block operator matrices*, *J. Funct. Anal.* 278 (2020).
- [54] mit H. Gernandt, N. Moalla, F. Philipp und W. Selmi, *Invariance of the essential spectra of operator pencils*, *Oper. Theory Adv. Appl.* 278 (2020), 203-219.
- [53] mit J. Huang, J. Sun und A. Chen: *The Invertibility of 2×2 Operator Matrices*, *Math. Nachr.* 292 (2019), 2411-2426.
- [52] mit F. Leben, *Operator based approach to PT-symmetric problems on a wedge-shaped contour*, *Quantum Stud.: Math. Found.* 6 (2019), 315-333.
- [51] mit J. Behrndt und Philipp Schmitz, *Spectral bounds for indefinite singular Sturm–Liouville operators with uniformly locally integrable potentials*, *J. Differential Equations* 267 (2019), 468-493.
- [50] mit T. Berger, J. Giribet und F. Martínez Pería, *On a class of non-Hermitian matrices with positive definite Schur complements*, *Proc. Amer. Math. Soc.* 147 (2019), 2375-2388.
- [49] mit T. Berger, H. Gernandt, H. Winkler und M. Wojtylak, *The Gap Distance to the Set of Singular Matrix Pencils*, *Linear Algebra Appl.* 564 (2019), 28-57.
- [48] mit B. Jacob, C. Tretter und H. Vogt, *Systems with strong damping and their spectra*, *Math. Methods Appl. Sci.* 41 (2018), 6546-6573.
- [47] mit J. Giribet, M. Langer, L. Leben, A. Maestriperi und F. Martínez Pería, *Spectrum of J-frame Operators*, erscheint in *Opusc. Math.* 38 (2018) 623-649.
- [46] mit J. Behrndt und P. Schmitz, *Spectral Bounds for Singular Indefinite Sturm–Liouville Operators with L^1 -Potentials*, erscheint in *Proc. Amer. Math. Soc.* 146 (2018), 3935-3942.

Projektrelevante Publikationen Carsten Trunk

- [45] mit V. Derkach, *Coupling of Definitizable Operators in Krein Spaces*, Nanosystems: Physics, Chemistry, Mathematics 8 (2017) 166–179.
- [44] mit H. Gernandt: *Eigenvalue Placement for Regular Matrix Pencils with Rank One Perturbations*, SIAM J. Matrix Anal. Appl. 38 (2017), 134-154.
- [43] mit A.A. Shkalikov, *On Stability of Closeness and Self-adjointness for 2×2 Operator Matrices*, Math. Notes 100 (2016), 870-875.
- [42] mit B. Jacob und M. Langer: *Variational Principles for Self-Adjoint Operator Functions Arising from Second-Order Systems*, Operators and Matrices 10 (2016), 501-531.
- [41] mit J. Behrndt und R. Möws: *Eigenvalue Estimates for Operators with Finitely many Negative Squares*, Opusc. Math. **36** (2016), , 717-734.
- [40] mit J. Behrndt, L. Leben, F. Martínez Pería und R. Möws: *Sharp Eigenvalue Estimates for Rank one Perturbations of Nonnegative Operators in Krein Spaces*, J. Math. Anal. Appl. **439** (2016), 864-895.
- [39] mit A. Ilchmann und T. Selig: *The Byrnes-Isidori Form for Infinite-Dimensional Systems*, SIAM J. Control Optim. **54** (2016), 1504-1534.
- [38] mit T. Berger und H. Winkler: *Linear Relations and the Kronecker Canonical Form*, Linear Algebra Appl. **488** (2016), 13-44.
- [37] mit J. Behrndt, L. Leben und F. Martínez Pería: *The Effect of Finite Rank Perturbations on Jordan Chains of Linear Operators*, Linear Algebra Appl. **479** (2015), 118-130.
- [36] mit F. Philipp: *Spectral Points of Type π_+ and Type π_- of Closed Operators in Indefinite Inner Product Spaces*, Operators and Matrices **9** (2015), 481-506.
- [35] mit J. Behrndt und R. Möws: *On Finite Rank Perturbations of Selfadjoint Operators in Krein Spaces and Eigenvalues in Spectral Gaps*, Complex Anal. Oper. Theory **8** (2014), 925-936.
- [34] mit J. Behrndt und F. Philipp: *Bounds on the Non-Real Spectrum of Differential Operators with Indefinite Weights*, Math. Ann. **357** (2013), 185-213.
- [33] mit J. Behrndt und A. Luger: *On the Negative Squares of a Class of Self-adjoint Extensions in Krein Spaces*, Math. Nachr. **286** (2013), 118-148.
- [32] mit F. Philipp: *The Numerical Range of Non-Negative Operators in Krein Spaces*, Linear Algebra Appl. **438** (2013), 2542-2556.
- [31] mit F. Philipp und V. Strauss: *Local Spectral Theory for Normal Operators in Krein Spaces*, Math. Nachr. **286** (2013), 32-58.
- [30] mit T. Ya. Azizov: *\mathcal{PT} Symmetric, Hermitian and \mathcal{P} -Self-Adjoint Operators Related to Potentials in \mathcal{PT} Quantum Mechanic*, J. Math. Phys. **53** (2012), 012109.
- [29] mit J. Behrndt und R. Möws: *Eigenvalue Estimates for Singular Left-Definite Sturm-Liouville Operators*, J. Spectr. Theory **1** (2011), 327-347.
- [28] mit T. Ya. Azizov, J. Behrndt und P. Jonas: *Spectral Points of Type π_+ and Type π_- for Closed Linear Relations in Krein Spaces*, J. London Math. Soc. **83** (2011), 768-788.
- [27] mit S. Kuzhel: *On a Class of J -Self-Adjoint Operators with Empty Resolvent Set*, J. Math. Anal. Appl. **379** (2011), 272-289.
- [26] mit F. Philipp und F. Szafraniec: *Selfadjoint Operators in S -Spaces*, J. Funct. Anal. **260** (2011), 1045-1059.
- [25] mit T. Ya. Azizov und P. Jonas: *Small Perturbation of Selfadjoint and Unitary Operators in Krein Spaces*, J. Operator Theory **64** (2010), 401-416.
- [24] mit M.-A. Henn und C. Mehl: *Hyponormal and Strongly Hyponormal Matrices in Inner Product Spaces*, Linear Algebra Appl. **433** (2010), 1055-1076.

Projektrelevante Publikationen Carsten Trunk

- [23] mit T.Ya. Azizov: *On domains of \mathcal{PT} symmetric operators related to $-y''(x) + (-1)^n x^{2n} y(x)$* , J. Phys. A: Math. Theor. **43** (2010), 175303.
- [22] *Analyticity of Semigroups Related to a Class of Block Operator Matrices*, Operator Theory: Advances and Applications **195** (2009), 257-271.
- [21] mit T. Ya. Azizov, J. Behrndt und P. Jonas: *Compact and Finite Rank Perturbations of Linear Relations in Hilbert Spaces*, Integral Equations Operator Theory **63** (2009), 151-163.
- [20] mit J. Behrndt und Q. Katatbeh: *Non-Real Eigenvalues of Singular Indefinite Sturm-Liouville Operators*, Proc. Amer. Math. Soc. **137** (2009), 3797-3806.
- [19] mit Birgit Jacob: *Spectrum and Analyticity of Semigroups arising in Elasticity Theory and Hydromechanics*, Semigroup Forum **79** (2009), 79-100.
- [18] mit I. Karabash: *Spectral Properties of Singular Sturm-Liouville Operators*, Proc. R. Soc. Edinb. Sect. A **139** (2009), 483-503.
- [17] mit F. Philipp: *G-Selfadjoint Operators in Almost Pontryagin Spaces*, Operator Theory: Advances and Applications **188** (2009), 207-236.
- [16] mit T. Azizov, J. Behrndt und F. Philipp: *On Domains of Powers of Linear Operators and Finite Rank Perturbations*, Operator Theory: Advances and Applications **188** (2009), 31-36.
- [15] mit V. Strauss: *Spectralizable Operators*, Integral Equations Operator Theory **61** (2008), 413-422.
- [14] mit B. Jacob und M. Winklmeier: *Analyticity and Riesz Basis Property of Semigroups Associated to Damped Vibrations*, Journal of Evolution Equations **8** (2008), 263-281.
- [13] mit J. Behrndt und Q. Katatbeh: *Accumulation of Complex Eigenvalues of Indefinite Sturm-Liouville Operators*, J. Phys. A: Math. Theor. **41** (2008), 244003.
- [12] *Spectral Theory for Operator Matrices Related to Models in Mechanics*, Math. Notes **83** (2008), 843-850.
- [11] mit T. Ya. Azizov und J. Behrndt: *On Finite Rank Perturbations of Definitizable Operators*, J. Math. Anal. Appl. **339** (2008), 1161-1168.
- [10] mit B. Jacob und K. Morris: *Minimum-Phase Infinite-Dimensional Second-Order Systems*, IEEE Transactions on Automatic Control **52** (2007), 1654-1665.
- [9] mit P. Jonas: *A Sturm-Liouville Problem Depending Rationally on the Eigenvalue Parameter*, Math. Nachr. **280** (2007), 1709-1726.
- [8] mit J. Behrndt: *On the Negative Squares of Indefinite Sturm-Liouville Operators*, J. Differential Equations **238** (2007), 491-519.
- [7] mit B. Jacob: *Location of the Spectrum of Operator Matrices which are Associated to Second Order Equations*, Operators and Matrices **1** (2007), 45-60.
- [6] mit C. Mehl: *Normal Matrices in Degenerate Indefinite Inner Product Spaces*, Operator Theory: Advances and Applications **175** (2007), 193-209.
- [5] mit J. Behrndt und A. Luger: *Generalized Resolvents of a Class of Symmetric Operators in Krein Spaces*, Operator Theory: Advances and Applications **175** (2007), 13-32.
- [4] mit J. Behrndt und F. Philipp: *Properties of the Spectrum of Type π_+ and Type π_- of Self-Adjoint Operators in Krein Spaces*, Methods Funct. Anal. Topology **12**, No. 4, (2006), 326-340.
- [3] mit J. Behrndt: *Sturm-Liouville Operators with Indefinite Weight Functions and Eigenvalue Depending Boundary Conditions*, J. Differential Equations **222** (2006), 297-324.
- [2] mit T. Ya. Azizov und P. Jonas: *Spectral Points of Type π_+ and π_- of Selfadjoint Operators in Krein Spaces*, J. Funct. Anal. **226** (2005), 114-137.
- [1] mit P. Jonas: *On a Class of Analytic Operator Functions and their Linearizations*, Math. Nachr. **243**

(2002), 92-133.

Publikationen in Proceedings

- [10] mit J. Behrndt and P. Schmitz: *The non-real spectrum of a singular indefinite Sturm–Liouville operator with regular left endpoint*, eingereicht.
- [9] mit J. Behrndt, B. Gsell, und P. Schmitz: *An Estimate on the non-real Spectrum of a Singular Indefinite Sturm-Liouville Operator*, Proc. Appl. Math. Mech. **17** (2017), 859-860.
- [8] mit J.P. Bergmann, M. Bielenin, R. Herzog, J. Hildebrand, I. Riedel, K. Schricker, und K. Worthmann: *Prevention of Solidification Cracking During Pulsed Laser Beam Welding*, Proc. Appl. Math. Mech. **17** (2017), 405-406.
- [7] mit J. Behrndt und P. Schmitz: *Bounds on the Non-real Spectrum of a Singular Indefinite Sturm-Liouville Operator on \mathbb{R}* . Proc. Appl. Math. Mech. **16** (2016), 881–882.
- [6] mit F. Büttner: *Limit-point / limit-circle Classification of Second-Order Differential Operators Arising in PT Quantum Mechanics*. Proc. Appl. Math. Mech. **16** (2016), 871–872.
- [5] *Eigenvalue Estimates for Operators with Finitely many Negative Squares*. Oberwolfach Reports **12** (2015), 17-20.
- [4] mit T. Azizov: *On a Class of Sturm-Liouville Operators which are Connected to PT Symmetric Problems*. Proc. Appl. Math. Mech. **14** (2014), 991–992.
- [3] mit V. Strauss: *Some Sobolev Spaces as Pontryagin Spaces*, Vestnik SUSU. Series Mathematics, Mechanics, Physics **6**, No. 11 **270** (2012), 14-23.
- [2] mit J. Behrndt und F. Philipp: *Definitizability of a Class of J -Selfadjoint Operators with Applications*, Proc. Appl. Math. Mech. **9** (2009), 665-666.
- [1] mit J. Behrndt und R. Möws: *Singular Indefinite Sturm-Liouville Operators with a Spectral Gap*, Proc. Appl. Math. Mech. **9** (2009), 669-670.

Mitherausgeberschaft

- [7] Vol. 41, Issue 4: Surveys for Applied Mathematics and Mechanics. Editor: A. Menzel, Managing Editor: R. Ostwald; Topical Issue: *Applied Operator Theory – Part II*, Guest Editors: B. Jacob, J. Behrndt, C. Tretter, und C. Trunk, WILEY, November 2018.
- [6] Vol. 41, Issue 3: Surveys for Applied Mathematics and Mechanics. Editor: A. Menzel, Managing Editor: R. Ostwald; Topical Issue: *Applied Operator Theory – Part I*, Guest Editors: B. Jacob, J. Behrndt, C. Tretter, und C. Trunk, WILEY, September 2018
- [5] *Proceedings in Applied Mathematics and Mechanics*, 88th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Weimar 2017, Vol. **17**, C. Könke and C. Trunk (Eds.), 2017, 874 p., Wiley Verlag, Weinheim.
- [4] *Spectral Theory, Mathematical System Theory, Evolution Equations, Differential and Difference Equations*, in Operator Theory: Advances and Applications, Vol. **221**, W. Arendt, J. Ball, J. Behrndt, K.-H. Förster, V. Mehrmann, C. Trunk (Eds.), 2012, 690 p., Birkhäuser Verlag Basel.
- [3] *Recent Advances in Operator Theory in Hilbert and Krein Spaces*, in Operator Theory: Advances and Applications, Vol. **198**, J. Behrndt, K.-H. Förster, C. Trunk (Eds.), 2010, 324 p., Birkhäuser Verlag Basel.
- [2] *Spectral Theory in Inner Product Spaces and Applications*, in Operator Theory: Advances and Applications, Vol. **188**, J. Behrndt, K.-H. Förster, H. Langer, C. Trunk (Eds.), 2009, 268 p., Birkhäuser Verlag Basel.
- [1] *Operator Theory in Inner Product Spaces*, in Operator Theory: Advances and Applications, Vol. **175**, K.-H. Förster, P. Jonas, H. Langer, C. Trunk (Eds.), 2007, 255 p., Birkhäuser Verlag Basel.