Tobias Jawecki

Email tobias.jawecki@gmail.com
Web https://newbisi.github.io
Nationality Austrian

Academic Employment & Teaching Experience

09/2021–08/2022	University Assistant, Institute for Theoretical Physics, TU Wien, Austria
10/2021–02/2022	Exercise Instructor, Institute for Theoretical Physics, TU Wien
03/2017–03/2020	University Assistant, Institute of Analysis and Scientific Computing, TU Wien, experiences as a substitute lecturer
10/2013–06/2016	Exercise Tutor, Institute of Analysis and Scientific Computing, TU Wien

Further Academic Experience

	Participation at international conferences with scientific talks, e.g., CMQT Bath 2022, SciCADE Innsbruck 2019, and seminars, e.g., Oberwolfach Wave Phenomena 2019
02/2019–05/2019	Visiting Researcher at Mathematical Institute, Oxford University, UK

Education

03/2017–12/2022	Doctoral Student Technische Mathematik, TU Wien, Austria Student at the doctoral college Unravelling Advanced 2D Materials
03/2015–03/2017	Diploma Student Technische Mathematik, TU Wien
03/2011–03/2015	Bachelor Student Technische Mathematik, TU Wien
10/2010–02/2011	Bachelor Student Technische Chemie (first semester), TU Wien
06/2009	Matura at Borg Götzis, Vorarlberg, Austria

Preprints

T. Jawecki. A review of the separation theorem of Chebyshev-Markov-Stieltjes for polynomial and some rational Krylov subspaces, 2022.
preprint at https://arxiv.org/abs/2205.01535

Publications

T. Jawecki and P. Singh. Unitarity of some barycentric rational approximants. IMA J. Numer. Anal., 2023.
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W. Auzinger, J. Dubois, K. Held, H. Hofstätter, T. Jawecki, A. Kauch, O. Koch, K. Kropielnicka, P. Singh, and C. Watzenböck. Efficient Magnus-type integrators for solar energy conversion in Hubbard models. *J. Comput. Math. Data Sci.*, 2:100018, 2022.
doi: 10.1016/j.jcmds.2021.100018

T. Jawecki. A study of defect-based error estimates for the Krylov approximation of φ-functions. *Numer. Algorithms*, 90(1):323–361, 2022.
doi: 10.1007/s11075-021-01190-x

W. Auzinger, T. Jawecki, O. Koch, P. Pukach, R. Stolyarchuk, and E.B. Weinmüller. Some aspects on [numerical] stability of evolution equations of stiff type; use of computer algebra. In *2021 IEEE XVII th International Conference on the Perspective Technologies and Methods in MEMS Design (MEMSTECH)*, pages 180–184, 2021.
doi: 10.1109/memstech53091.2021.9468055

C. Schattauer, L. Linhart, T. Fabian, T. Jawecki, W. Auzinger, and F. Libisch. Graphene quantum dot states near defects. *Phys. Rev. B*, 102:155430, 2020.
doi: 10.1103/PhysRevB.102.155430

T. Jawecki, W. Auzinger, and O. Koch. Computable upper error bounds for Krylov approximations to matrix exponentials and associated φ-functions. *BIT*, 60(1):157–197, 2020.
doi: 10.1007/s10543-019-00771-6

Theses

T. Jawecki. Krylov techniques and approximations to the action of matrix exponentials. Ph.D thesis, TU Wien, Austria, 2022.
doi: 10.34726/hss.2022.45083

T. Jawecki. Bifurcation analysis via numerical continuation for nonlinear fourth-order partial differential equations. Diploma thesis, TU Wien, 2017.
available online at https://permalink.catalogplus.tuwien.at/AC13642458