

Seminar im Wintersemester 2026/27

Spezielle Zeitintegrationsverfahren

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Freitag, 11:30-13:00 Uhr, Seminarraum 3.061, Gebäude 20.30

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|---|----------------------|
| • Termin? | Tobias Jahnke |
| 1. Wie hält man einen guten Vortrag? 2. Gute wissenschaftliche Praxis. | |
| • Termin? | N.N. |
| On time-splitting methods for nonlinear Schrödinger equation with highly oscillatory potential | |
| Literatur: [SZ20] | |
| • Termin? | N.N. |
| Low Regularity Exponential-Type Integrators for Semilinear Schrödinger Equations | |
| Literatur: [OS18] | |
| • Termin? | N.N. |
| On leapfrog-Chebyshev schemes | |
| Literatur: [CHS20] | |
| • Termin? | N.N. |
| Superconvergence of the Strang splitting when using the Crank-Nicolson scheme for parabolic PDEs with Dirichlet and oblique boundary conditions | |
| Literatur: [BBV21] | |
| • Termin? | N.N. |
| Improved high order integrators based on the Magnus expansion | |
| Literatur: [BCR00] | |
| • Termin? | N.N. |
| Analysis of the parareal time-parallel time-integration method | |
| Literatur: [GV07] | |
| • Termin? | N.N. |
| On the convergence of splitting methods for linear evolutionary Schrödinger equations involving an unbounded potential | |
| Literatur: [NT09] | |
| • Termin? | N.N. |
| Uniform error bounds of time-splitting methods for the nonlinear Dirac equation in the nonrelativistic regime without magnetic potential | |
| Literatur: [BCY21] | |
| • Termin? | |
| Ersatztermin | |

Alle Artikel erhalten Sie als pdf von uns.

Die Vortragsdauer beträgt ca. 75 Minuten. In dieser Zeit ist es nicht möglich bzw. sinnvoll, das komplette Paper mit allen Details zu präsentieren. Deshalb empfehle ich Ihnen dringend, spätestens einen Monat vor Ihrem Vortragstermin mit mir über Ihr Vortragskonzept und mögliche Kürzungen zu sprechen.

References

- [BBV21] Guillaume Bertoli, Christophe Besse, and Gilles Vilmart. Superconvergence of the strang splitting when using the crank-nicolson scheme for parabolic pdes with dirichlet and oblique boundary conditions. *Math. Comp.*, to appear, 2021.
- [BCR00] S. Blanes, F. Casas, and J. Ros. Improved high order integrators based on the Magnus expansion. *BIT*, 40(3):434–450, 2000.
- [BCY21] Weizhu Bao, Yongyong Cai, and Jia Yin. Uniform error bounds of time-splitting methods for the nonlinear Dirac equation in the nonrelativistic regime without magnetic potential. *SIAM J. Numer. Anal.*, 59(2):1040–1066, 2021.
- [CHS20] Constantin Carle, Marlis Hochbruck, and Andreas Sturm. On leapfrog-Chebyshev schemes. *SIAM J. Numer. Anal.*, 58(4):2404–2433, 2020.
- [GV07] Martin J. Gander and Stefan Vandewalle. Analysis of the parareal time-parallel time-integration method. *SIAM J. Sci. Comput.*, 29(2):556–578, 2007.
- [NT09] Christof Neuhauser and Mechthild Thalhammer. On the convergence of splitting methods for linear evolutionary Schrödinger equations involving an unbounded potential. *BIT*, 49(1):199–215, 2009.
- [OS18] Alexander Ostermann and Katharina Schratz. Low regularity exponential-type integrators for semilinear Schrödinger equations. *Found. Comput. Math.*, 18(3):731–755, 2018.
- [SZ20] Chunmei Su and Xiaofei Zhao. On time-splitting methods for nonlinear Schrödinger equation with highly oscillatory potential. *ESAIM Math. Model. Numer. Anal.*, 54(5):1491–1508, 2020.