

PROF. DR. RUDOLF SCHERER  
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### Curriculum Vitae (Visit to China 2017)

Name	Rudolf Scherer
Nationality	Germany
Education	1963–1969 Study: Mathematics and Physics, University of Tübingen 1971 Doctoral Degree (PhD), 1976 Habilitation, University of Tübingen
Occupation	1969–1979 Scientific Assistant, University of Tübingen 1979–1980 Professorship Substitution, University of Duisburg 1980–1981 Professorship, University of Tübingen 1981–2008 Full Professor, University of Karlsruhe (TH) 2008–2009 Visiting Professor at the Kuwait University (1 year) 2009– Professor Emeritus, Karlsruhe Institute of Technology (KIT *)
Experiences	Lectures in mathematics since 45 years Chair of the examination board Supervisor of students in industrial mathematics Supervisor of students in the international master course Adviser for student exchange programmes Execution of different scientific projects Supervisor of about 70 Master and 10 PhD theses Attention and invitation for national and international conferences Lecture and research visits to China 1998, 2000, 2002, 2004, 2006, 2010, 2013 Chinese Academy of Sciences, Tsinghua University, Beijing Institute of Technology, Renmin University, Nanjing Normal University, Qingdao University, Suzhou University, Shanghai Tongji University Lecture and research visits to USA, Bulgaria, Greece, India, and other countries Host of many visitors in Karlsruhe U (and now KIT)
Interests	Applied and numerical mathematics Scientific computing, mathematical modeling
Research	Numerical treatment of differential equations Fractional differential equations Hamiltonian und Birkhoffian systems, differential algebraic equations Stochastic Hamiltonian equations Special functions, quadrature formulas, numerical approximation 85 publications with 40 different co-workers

\* **KIT – Karlsruhe Institute of Technology**

since October 1st, 2009, the Technical University of Karlsruhe is running under new structure integrating two scientific institutions

KIT = Karlsruhe University  $\oplus$  National Helmholtz Research Center

## Selected Publications during the last years

1. (With Th. Schira) Estimating quadrature errors for analytic functions using kernel representations and biorthogonal systems. *Numer. Math.* 84, 497–518 (2000).
2. (With L. Boyadjiev) Fractional extensions of the temperature field problem in oil strata. *Kuwait J. Sci. Eng.* 31, 15–32 (2004).
3. (With Y. Tang and X. Zhang) Stability analysis of equilibrium manifolds for a two-predators one-prey model. *Tsinghua Science and Technology* 11, 739–744 (2006).
4. (With L. Wang) Transforms between the four different Gauss-Chebyshev quadrature formulae. *Intern. J. Pure and Appl. Mathematics* 28, 565–583 (2006).
5. (With J. Hong and L. Wang) Midpoint rule for a linear stochastic oscillator with additive noise. *Neural, Parallel and Scientific Computations* 14, 1–12 (2006).
6. (With J. Hong and L. Wang) Predictor-Corrector methods for a linear stochastic oscillator with additive noise. *Math. Comput. Modelling* 46, 738–764 (2007).
7. (With H.L. Su, Y.J. Sun and M.Z. Qin) Structure preserving schemes for Birkhoffian systems. *Intern. J. Pure and Appl. Mathematics* 40, 341–366 (2007).
8. (With N. Popivanov and T. Popov) Asymptotic expansions of singular solutions for  $(3 + 1) - D$  Protter problems. *J. Math. Anal. Appl.* 331, 1093–1112 (2007).
9. (With S.L. Kalla and B. Al-Saqabi) On a generalized inverse Gaussian distribution. *Intern. J. Appl. Mathematics* 20, 11–27 (2007).
10. (With R. Widura, M. Lehn and K. Muralidhar) Operator splitting approach applied to oscillatory flow and heat transfer in a tube. *J. Comput. Appl. Math.* 211, 115–130 (2008).
11. (With J.B. Chen and M.Z. Qin) Multisymplectic and variational integrators. *Intern. J. Pure and Appl. Mathematics* 44, 509–536 (2008).
12. (With S.L. Kalla, L. Boyadjiev and B. Al-Saqabi) Numerical treatment of fractional heat equations. *Appl. Numer. Math.* 58, 1212–1223 (2008)
13. (With H.L. Su, M.Z. Qin and Y.S. Wang) Multi-symplectic Birkhoffian structure for PDEs with dissipation terms. *Physics Letters A* 374, 2410–2416 (2010).
14. (With J. Hong and L. Wang) Simulation of stochastic Hamiltonian systems via generating functions. *Proceedings of ICCSIT 2011, 4th IEEE International Conference on Computer Science and Information Technology, Vol.8, pp. 523-528 (2011).*
15. (With S.L. Kalla, Y.F. Tang, and J.F. Huang) The Grünwald-Letnikov method for fractional differential equations. *Computers and Mathematics with Applications* 62, 902–917 (2011).
16. (With N. Popivanov and T. Popov) Protter-Morawetz multidimensional problems. *Proceedings of the Steklov Institute of Mathematics, Vol. 278, pp. 179-198 (2012).*
17. (With N. Popivanov and T. Popov) Singular solutions with exponential growth to Protters problems. *Siberian Advances in Mathematics, Vol. 23, pp. 219-226 (2013).*
18. (With S.D. Purohit and S.L. Kalla) On generalized fractional partial differential equations of quantum mechanics. Submitted to a journal.