Personal Details

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Curriculum Vitae

7.5.1958	Day of birth
1964 - 1969	Grammer School in Hochneukirch
1969 - 1978	Städtisches Gymnasium Rheydt-Odenkirchen
1978	German Abitur
1978	Study of Physics at Technische Hochschule Aachen
1979	Fellowship of "Studienstiftung des Deutschen Volkes"
1980 - 1982	Civil Service
1982	Vordiploma (B.S.) in Physics
1986	Diploma (M.S.) in Theoretical Elementary Particle Physics at Technical University of Aachen Title of thesis: "Study of the Higgs Phase Transition in U(1)-Lattice Gauge Theory with Scalar Field"
1986	Start of Ph.D. work about lattice Higgs models
June 1988	Dissertation in Theoretical Particle Physics at Technical University of Aachen Title: "Investigation of the upper bound for the Higgs boson mass on the lattice"
July 1988	Post Graduate Researcher at HLRZ Jülich
October 1990	Research fellow position at UCSD, La Jolla, USA
September 1993	Research assistent at DESY, Hamburg
January 1995	Habilitation at University of Hamburg Title: "Domain Wall Fermions and Chiral Gauge Theories"
March 1995	Heisenberg-Fellowship
December 1996	CERN, Genéve, Switzerland with Scientific Associate Fellowship
October 2000	Leader of Research Group Particle Physics at the John von Neumann-Institute of Computing (NIC)
October 2007	Senior Scientific Staff member of DESY NIC group
January 2022	Head of Center for Quantum Technologies and Applications (CQTA) `https://quantum-zeuthen.desy.de`

Research interests

- Lattice Field Theory
- Qauntum Computing
- Tensor Networks
- Turbulence
- Theoretical Biology

Fellowships

1978 - 1985	Fellowship of the "Studienstiftung des Deutschen Volkes" (German National Scholarship Foundation)
1995	Heisenberg Fellowship of the DFG (German Research Association)
1996	CERN Fellowship as Scientific Associate

Awards

Wilson Award	The 2011 Ken Wilson Lattice Award
Cyprus Award	The Award as am *Experienced Researcher* from the Cyprus Research Promotion Foundation 2012/2013
NIC Excellence Award	NIC award for excellence project computing $g_\mu - 2$
ERA Chair Award	European Award as ERA Chair in "Quantum computing for Excellence in Science and Technology"

Professional Activities

Journal editor	Computational Science and Discovery
Journal referee	Phys.Rev.Lett., Phys.Lett.B, Nucl.Phys.B.,
	Phys.Rev.D, EPL, JHEP, CPC, Quantum
Speaker role	Speaker of German Lattice Forum (LatFor)
	Speaker of the Extended Twisted Mass Collaboration (ETMC)
	Deputy Speaker of German Sonderforschungsbereich SFB/TR-9
	"Computer aided Theoretical Particle Physics"
	Board member of the International Lattice Data Grid (ILDG)
Expert role	STFC, United Kingdom
	Evaluation committee "Center for Computational Sciences", Tsukuba, Japan
	DOE, United States
	Swiss National Fonds, Switzerland
	Austrian National Fonds, Austria
	Chaires d'excellence, France
	Scientific board member of the PetaQCD project
Ombud person	DESY Zeuthen Ombud person 2013-now
WA	Member of the "Wissenschftlicher Ausschuß" at DESY
Ethik	Member of the ethics commission at DESY

Educational activities (with selected PhD and postdoc schools)

Diploma/Master	13 finished Diploma and Master works
Ph.D.	21 finished, and 8 ongoing Ph.D. works
2006	PhD school on *Lattice Practices*, Zeuthen
2008	PhD school on *Lattice Practices*, Zeuthen
2007	INT Summer School on *Lattice QCD and its applications*, Seattle, USA
2011	School on *Lattice QCD, Hadron Structure and Hadronic Matter*, Dubna, Russia
2011	PhD school on *Lattice Practices*, Zeuthen
2012	School on *Non-perturbative Renormalization*, Zeuthen
2012	PhD school on *Lattice Practices*, Zeuthen
2014	PhD school on *Lattice Practices*, Zeuthen
2014	PhD school on *Non-pertubative methods*, Sao Paolo, Brazil
2015	PhD school on *Lattice Practices*, Jülich
2016	PhD school on *Non-perturbative Lattice Gauge Theory*, Dubna, Russia
2016	PhD school on *lattice field theory*, Beijing, China
2019	PhD school on *high energy physics in Brazil, Florianopolss*, Brazil
2007–2015	organization DESY summerstudent programme
2020-now	Tutorials on quantum computing

Third part grants

01/2007 – 12/2014	SFB/ TR 9 Project
	"Computergestützte Theoretische Teilchenphysik"
01/2007 – 07/2010	DFG JA 674/5 Project
	"Quantenchromodynamik mit chiral rotiertem Massenterm"
01/2007 – 12/2014	DFG Mu932/4 Project
	"Chiral invariant Higgs-Yukawa model on the lattice"
01/2012 – 12/2013	DAAD 54368813 Project
	"Non-perturbative Higgs-Yukawa models on the Lattice"
01/2014 – 01/2016	DFG JA 674/6-1 Project
	"Quasi Monte Carlo methods in quantum field theory"
09/2015 – 09/2019	HPC-LEAP
	"High Performance Computing in Life sciences, Engineering and Physics"
	European Joint Doctorate
01/2020 – now	DASHH
	Data Science in Hamburg, graduate school
09/2015 – 09/2019	STIMULATE
	"SimulaTIon in MUltiscaLe physicAl and biological sysTEms"
	European Joint Doctorate
07/2021 - now	Helmholtz Innopool project: "Quantum Computing for LuXE"
07/2021 - now	Helmholtz Innopool project: "Variational Quantum Computer Simulations"
10/2021 - now	European project: T-NiSQ
	"Tensor Networks in Simulations of Quantum matter"
01/2022 – now	ENGAGE
	"Enabling the next generation of computational physicists and engineers"
	European Joint Doctorate
07/2022 - now	Einstein Research Unit from Berlin University Alliance
03/2022 - now	BMBF project: NiQ
	" Noise in Quantum Simulations"
01/2023 - 12.2027	ERA Chair: "QUantum computing for Excellence in Science and Technology"

Regular awards for supercomputing time amounting to more than 1 billion core hours since 2018

Jülich	HLRZ (Cray), NIC (CRAY and BlueGeneL/P/Q), Juwels
Munich	LRZ (SGI parallel system, SuperMUC)
Stuttgart	HRLS (CRAY)
Prace	Jülich, Cineca, Munich
HLRN	SGI parallel system
Bochum	Cyber 205
UCSD	San Diego Supercomputer Center, Cray

Supervised Diploma and Master theses

Carsten Urbach	*Untersuchung der Reversibilitätsverletzung beim Hybrid-Monte-Carlo-Algorithmus* FU Berlin September 2002
Nils Christian	*Untersuchung des Skalierungsverhaltens verschiedener Gitterwirkungen im Schwingermodell* FU Berlin October 2004
Beatrix Pollakowski	*Dynamische Overlap-Fermionen im zweidimensionalen Schwingermodell* HU Berlin September 2005
Jénifer González López	*Cutoff effects and continuum limit at tree-level of perturbation theory for Wilson twisted mass fermions at maximal twist* HU Berlin August 2007
Isaac Hailperin	*Eigenwertspektrum der Gitter Quantenchromodynamik mit chiral rotiertem Massenterm* FU Berlin April 2008
Andreas Nube	*Anwendung des PHMC-Algorithmus in der Gitter-QCD mit chiral rotiertem Massenterm* HU Berlin May 2008
Marcus Petschlies	*Exploring the phase structure of Wilson twisted mass lattice QCD at finite temperature* HU Berlin June 2008
David Mesterházy	*Untersuchungen der Burgers Gleichung im Pfradintegral Formalismus* HU Berlin June 2008 (Bachelor)
Olivia Haas	*The Locality of the Overlap Operator towards the Continuum Limit* TU Berlin March 2010 (Bachelor)
Roman Welsing	*Das η' Meson mit dynamischen up, down, strange und charm Quarks in der Gitter QCD* FU Berlin September 2010
Pan Kessel	*Wilson Loops in small Volume* HU Berlin September 2011
Manuel Schneider	*Ground States through Variational Optimization using Matrix Product States: a comparison between open and periodic boundary conditions* HU Berlin March 2019
Tim Schwägerl	*A pattern recognition algorithm for Noisy Intermediate-Scale Quantum devices* HU Berlin August 2022

Supervised Ph.D. theses

Dr. Thomas Chiarappa	*Chiral Fermion on the Lattice: Investigation of the ϵ-expansion of ChPT*, Ph.D. HU Berlin 2001-2004
Dr. Carsten Urbach	*Wilson Twisted Mass Fermions: Towards Realistic Simulations of Lattice-QCD*, Ph.D. FU Berlin 2002-2005
Dr. Philipp Gerhold	*Upper and lower Higgs boson mass bounds from a chirally invariant lattice Higgs-Yukawa model*, Ph.D. HU Berlin 2006-2009, Defense 15.10.2009 (Summa cum Laude)
Dr. Krzysztof Cichy	*Lattice QCD with chirally invariant fermions*, Ph.D. Adam Mickiewicz University in Poznan 2007-2010, Defense 18.05.2010 (Summa cum Laude)
Dr. Xu Feng	*Investigating scattering phenomena from Lattice QCD using twisted mass fermions*, Ph.D. Universität Münster 2007-2010, Defense 15.07.2010 (Summa cum Laude)
Dr. Jim Kallarackal	*The Higgs boson resonance from a chiral Higgs-Yukawa model on the lattice*, Ph.D. HU Berlin 2008-2011, Defense 9.06.2011
Dr. Jénifer González López	*On the chirally rotated Schrödinger functional with Wilson fermions*, Ph.D. HU Berlin 2008-2011, Defense 13.07.2011
Dr. Simon Dinter	*Nucleon structure from lattice QCD*, Ph.D. HU Berlin 2009-2012, Defense 13.10.2012
Dr. Marcus Petschlies	*Non-perturbative investigation of current correlators in twisted mass lattice QCD*, Ph.D. HU Berlin 2009-2013, Defense 25.03.2013

Dr. David Mesterházy	*Equilibrium and Nonequilibrium Scaling Phenomena in strongly correlated Systems*, Ph.D. Ruperto-Carola-University of Heidelberg 2010-2013
Dr. Elena García Ramos	*Investigations of chiral symmetry breaking and topological aspects of lattice QCD*, Ph.D. HU Berlin 2009-2013, 16.12.2013
Dr. Andreas Ammon (geb. Nube)	*Chiral description and physical limit of pseudoscalar decay constants with four*, *dynamical quarks and applicability of*, *quasi Monte Carlo for lattice systems*, Ph.D. HU Berlin 2010-2013, Defense 13.2.2014
Dr. Hernan Leövey	*Derivative based Quasi-Monte Carlo Constructions and Sensitivity Estimates*, Ph.D. HU Berlin 2011-2015, Defense 10.9.2015 (Summa cum Laude)
Dr. Grit Pientka (geb. Hotzel)	*Hadronic Contributions to electroweak observables*, Ph.D. HU Berlin 2011-2015, Defense 11.9.2015 (Summa cum Laude)
Dr. Christian Wiese	*Investigating New Lattice Approaches to the Momentum and Spin Structure of the Nucleon*, Ph.D. HU Berlin 2012-2016, Defense 13.5.2016 (Magna cum Laude)
Dr. Bartosz Kostrzewa	*Maximally Twisted Mass Lattice QCD at the Physical Pion Mass*, Ph.D. HU Berlin 2012-2016, Defense 21.6.2016 (Magna cum Laude)
Dr. Julia Volmer	*New Attemps for Error Reduction in Lattice Field Theory Calculations*, Ph.D. HU Berlin 2014-2018, Defense 9.7.2018 (Magna cum Laude)
Dr. Georgios Margazoglu	*Novel Computational Techniques of Sampling Extreme and Rare Events*, *in space-tiem Histories of Stochastic Fields*, Ph.D. University Rome II, "Tor Vergata" 2015-2018, Defense 17.12.2018 (Summa cum Laude)
Dr. Paolo Stornati	*Variational Quantum Simulations of Lattice Gauge Theories*, Ph.D. Humboldt University at Berlin 2018-2021, Defense 10.8.2021 (Magna cum Laude)
Dr. Manuel Schneider	*The Hubbard model on a honeycomb lattice with fermionic tensor networksVariational Quantum Simulations* Ph.D. Humboldt University at Berlin 2019-2022, Defense 30.11.2022 (open)
Dr. Giovanni Iannelli	*Bayesian optimization od variational quantum eigensolvers* Ph.D. Humboldt University at Berlin , University Rome II, "Tor Vergata"2019-2022, Defense xx.xx.2022 (open)

Ten important publications

L. Funcke, T. Hartung, K. Jansen, S. Kühn and P. Stornati, *Dimensional Expressivity Analysis of Parametric Quantum Circuits*,
Quantum **5** (2021), 422

D. Paulson, L. Dellantonio, J. F. Haase, A. Celi, A. Kan, A. Jena, C. Kokail, R. van Bijnen, K. Jansen, P. Zoller, and C. Muschik,
Towards simulating 2D effects i lattice gauge theories on a quantum computer,
PRX Quantum **2** (2021), 030334

K. A. Nicoli, C. J. Anders, L. Funcke, T. Hartung, K. Jansen, P. Kessel, S. Nakajima and P. Stornati, *Estimation of Thermodynamic Observables in Lattice Field Theories with Deep Generative Models*,
Phys. Rev. Lett. **126** (2021) no.3, 032001

M. C. Bañuls, R. Blatt, J. Catani, A. Celi, J. I. Cirac, M. Dalmonte, L. Fallani, K. Jansen, M. Lewenstein and S. Montangero, *et al.*,
Simulating Lattice Gauge Theories within Quantum Technologies,
Eur. Phys. J. D **74** (2020) no.8, 165

T. Hartung and K. Jansen,
Zeta-regularized vacuum expectation values,
J. Math. Phys. **60** (2019) no.9, 093504

C. Alexandrou, K. Cichy, M. Constantinou, K. Jansen, A. Scapellato and F. Steffens,
Light-Cone Parton Distribution Functions from Lattice QCD,
Phys. Rev. Lett. **121** (2018) no.11, 112001

P. Hernandez, K. Jansen, M. Lüscher,
Locality properties of Neuberger's lattice Dirac operator,
Nucl. Phys. **B552** (1999) 363.

A. Hasenfratz, K. Jansen, C. B. Lang, T. Neuhaus, H. Yoneyama,
*The Triviality Bound of the Four Component phi**4 Model*,
Phys. Lett. **B199** (1987) 531.

European Twisted Mass Collaboration, P. Boucaud *et. al.*,
Dynamical twisted mass fermions with light quarks,
Phys. Lett. **B650** (2007) 304.

C. Urbach, K. Jansen, A. Shindler, U. Wenger,
HMC algorithm with multiple time scale integration and mass preconditioning,
Comput.Phys.Commun. **174** (2006) 87.

Publication Summary

I am the author of a total of 510 scientific publications which have been cited 16.279 times (as of March 2023 and according to the Spires data base http://www.slac.stanford.edu/spires/hep/). 229 of these publications have appeared in in peer reviewed international journals, 281 are contributions to proceedings of international conferences and schools including a number of invited plenary talks.

Some hobbies

https://www-zeuthen.desy.de/~kjansen/hobbies/index.html

Music	Playing guitar (Jazz, Blues, Rock, Musical)
	Member of DESY-Band (Zeuthen)
	recently started playing Theremin
	started quantum music
Diving	around the world
Hiking	enjoy long hiking trips
	preferably combined with swimming
Cooking	like to cook around the world
	participated in competitions