Curriculum vitae

Personal Information

FIRST NAME / SURNAME	Giorgio Sangiovanni
PERMANENT ADDRESS	Universität Würzburg
	Institut für Theoretische Physik und Astrophysik
	TP1, Campus Süd – Am Hubland, 97074 Würzburg – Germany
TEL. & EMAIL	+49 (0)931 31 89100 – giorgio.sangiovanni@uni-wuerzburg.de
WEB	https://www.physik.uni-wuerzburg.de/sangiovanni

NATIONALITY	Italian and German
DATE OF BIRTH	2. Aug 1976
MARITAL STATUS	Married; one daughter

Employment

DATES	October 2023 - present
POSITION	Full Professor (W3), Chair of "Computational Quantum Materials"
INSTITUTION	Julius-Maximilians-Universität Würzburg

DATES	March 2012 - October 2023
POSITION	Associate Professor (W2) of Theoretical Physics
INSTITUTION	Julius-Maximilians-Universität Würzburg

DATES	September 2008 - February 2012
POSITION	University assistant
INSTITUTION	Institute for Solid State Physics – TU Wien

DATES	December 2004 - August 2008
POSITION	Post-doc grant
INSTITUTION	Max-Planck Institute for Solid State Research – Stuttgart

Education

PHD IN PHYSICS	2005 – Sapienza University of Rome – supervisors M. Capone, C. Castellani
"LAUREA" IN PHYSICS	2001 – Sapienza University of Rome, supervisor Claudio Castellani
HIGH-SCHOOL LEAVING EXAM	1995 – "Maturità" – Liceo scientifico "L. Pasteur", Rome
MUSIC	1994 – French Horn Diploma – Conservatorio "S. Cecilia", Rome

Curriculum vitae

Competitions, shortlists and other achievements

DATE	September 2023
INSTITUTION	Julius-Maximilians-Universität Würzburg
POSITION	Chair of "Computational Quantum Materials"
RESULT	1st in the shortlist and offer ("Ruf")
DATE	July 2011
INSTITUTION	Julius-Maximilians-Universität Würzburg
POSITION	W2/associate Professorship in theoretical physics
RESULT	1st in the shortlist and offer ("Ruf")
HABILITATION AS ITALIAN PROFESSOR	2017 – In the category of Full Professor of Theoretical Condensed Matter Physics
	2012 – In the category of Associate Professor of Theoretical Condensed Matter Physics
PHD ENTRANCE COMPETITIONS	2001 – SISSA (Trieste) – short-listed, offer declined
	2001 – Sapienza University of Rome – short-listed, offer accepted

Recent visits

PERIOD	2023 Sep-Oct
INSTITUTION/PROGRAM	UCSB-KITP, USA – *Quantum Materials With and Without Quasiparticles* – L. Benfatto, A. Chubukov, S. Hartnoll and D. Maslov
PERIOD	2022 Mar-Apr and Oct-Nov
INSTITUTION/PROGRAM	*Joliot Chair* Visiting Faculty ESPCI, Paris, France
PERIOD	2021 Oct-Dec and 2019 Jan-Feb
INSTITUTION/PROGRAM	SIMONS FOUNDATION – CCQ, Flatiron Institute, New York, USA

Curriculum vitae

Research interests

- Theory of interacting electron systems
- Topological states of matter
- Realistic calculations of quantum materials
- Quantum magnetism
- Computational methods for strongly correlated fermions

Publication record

~150 publications in international journals
34 PRL, 1 Science, 2 Nature, 3 Nature Phys., 7 Nature Commun., 3 PRX, 4 Nano Letters, 2 npj Quantum Materials, >60 PRB/PRR (see full list)
h-index: 49 (**Google Scholar**), 43 (ISI Web-of-Science)

Invited talks and seminars

~50 invited talks in international conferences and invited seminars
(see below for a detailed list)

Third-party funding

DFG – FOR 5249 Principal investigator of Project *"Modeling non-local interaction phenomena in real materials: electrons, lattice & topology"* – 4 years/235 k€

DFG – EXC 2147 One of the funding principal investigators of ***ct.qmat*** Dresden/Würzburg cluster *"Complexity and Topology in Quantum Matter"* – 7 years

DFG – SFB 1170 Principal investigator of two Projects in the SFB *"Topological and Correlated Electronics at Surfaces and Interfaces"* – 12 years/950 k€

DFG – FOR 1346 Principal investigator of Project *"Realistic theory of electronic correlations in nanoscopic systems"* – 3 years/136 k€

DFG – FOR 1162 Principal investigator of Project *"Orbital, spin and charge fluctuations in layered oxide heterostructures"* – 3 years/237 k€

FWF *"Lise Meitner"* fellowship M1136, project title *"At the frontiers of phonons and correlated electrons"* – 2 years/143 k€

Organization of conferences

DATE/VENUE 2020 (postponed to 2022) Amalfi (Italy)
DESCRIPTION 2. edition of the international conference *"**Lectiones Amalfitanæ**"* on electronic correlations and quantum materials
OTHER ORGANIZERS A. Toschi, M. Cuoco and A. Georges

DATE/VENUE 2018 Campello sul Clitunno (Italy)
DESCRIPTION 1. edition of the international conference *"**Lectiones Clitumnaliæ**"* on electronic correlations,
OTHER ORGANIZERS S. Andergassen and A. Toschi

DATE/VENUE 2018 Würzburg
DESCRIPTION International Conference *"**ToCoTronics2018**"* of the SFB 1170
OTHER ORGANIZERS R. Claessen, B. Trauzettel, J. Schäfer, T. Kießling and V. Hinkov

DATE/VENUE 2014 Haikou (China)
DESCRIPTION Symposium H1 at the International Conference *"Second International Conference of Young Researchers on Advanced Materials"* IUMRS-ICYRAM
OTHER ORGANIZERS X.-Q. Chen, C. Franchini, G. Profeta, A. Kolmogorov and R. Zhang

DATE/VENUE 2014 Nice (France)
DESCRIPTION International Conference *"The New Generation in Strongly Correlated Electron Systems"* NGSCES 2014
OTHER ORGANIZERS N. Bergeal, S. Kaiser and M. Schirò

Curriculum vitae

Academic activities

@UNI WÜRZBURG

Program Head of Physics Bachelor and Master (Fakultät für Physik und Astronomie, University of Würzburg)

Coordinator of the exchange program *"Amerikaprogramm für Studierende der Physik"* with four universities in the USA for the Fakultät für Physik and Astronomie of the University of Würzburg. Fundings applied to the DAAD.

Vorsitzender (=speaker) of the Kommission für das Auslandsstudium and Member of the Fakultätsrat (Fakultät für Physik und Astronomie, University of Würzburg)

Host of a *"Humboldt Research Fellowship for Postdoctoral Researchers"* Grant (Dr. Zhicheng Zhong, 2015), funded by the A. von Humboldt Stiftung

Teaching

@UNI WÜRZBURG

- "Quantenmechanik I"
- "Quantenmechanik II"
- "Quantenmechanik III"
- "Mathematische Grundlagen der Quantenmechanik"
- "Computational Physics" for Bachelor Students
- "Theorie der Supraleitung"
- "Theoretische Festkörperphysik II"
- "Computational Materials Science"
- Oberseminar "Fortgeschrittene Themen der Theoretischen Physik"
- Oberseminar "Quantum Matter: Theorie und Experiment"
- Oberseminar "Symmetrien in der Festkörperphysik"

@TU WIEN

- lecturer of "Quantentheorie I"
- Übungen zur "Quantenfeldtheorie für Vielteilchensysteme"
- lecturer of "Computational Materials Science"
- lecturer of "Quantum Computing and Quantum Dots"
- lecturer of "Computational Materials Science"
- "Quantentheorie II Übungen"
- "Laborübungen II"

Curriculum vitae

Supervision of students and former group members

POSTDOC M. Karolak, D. Di Sante, L. Crippa, M. Crispino, F. Paoletti, G. Mirarchi, M. Verma, L. Zullo, L. Del Re

PHD F. Valerio Servilio, M. Fischer, S. Enzner, P. Eck, S. Adler, N. Wagner, A. Kowalski, A. Hausoel, M. Edelmann, N. Parragh, M. Wallerberger, E. Assmann, A. Valli, C. Taranto

MASTER M. Xylander, M. Feld, M. Fischer, N. Wagner, P. Eck, A. Hausoel, M. Fuchs, M. Edelmann, A. Kowalski, S. Enzner, M. Veit, P. Gunacker, C. Ecker, D. Rotter, S. Hummel, N. Parragh

BACHELOR/PROJECT T. Plote, M. Kuhr, E. Schwartzkopf, T. Schneider, S. Enzner, A. Bakic, N. Wagner, A. Kowalski, S. Körber, L. Gradl, S. Wolf, V. Motsch, D. Rotter, A. Girschik, C. Ecker, N. Parragh

Activity as Referee

APS Physical Review Journals – Springer Nature Journals – ACS Publications – ERC (European Research Council) – Deutsche Forschungsgemeinschaft (DFG) – Alexander von Humboldt Stiftung – PRIN (Italian Ministerium for University and Research) – SNF (Swiss National Science Foundation)

Curriculum vitae

Five selected papers

PRL (IN PRESS)
N. Wagner, D. Guerci, A. J. Millis and G. Sangiovanni
[ARXIV]
Edge zeros and boundary spinons in topological Mott insulators
SHORT DESCRIPTION
We propose a physical interpretation of Green's function zeros via gapless edge spinons at particle-hole symmetry of U(1) spin liquids and discuss the annihilation mechanism at interfaces with quantum spin Hall systems .

NAT. COMMUN. 14, 7531 (2023)
N. Wagner, L. Crippa, A. Amaricci, P. Hansmann, M. Klett, E. König, T. Schäfer,
[NATURE, ARXIV]
D. Di Sante, J. Cano, A. J. Millis, A. Georges and G. Sangiovanni
Mott insulators with boundary zeros
SHORT DESCRIPTION
We demonstrate that the topology of strongly interacting states is encoded in the single-particle Green's and uncover the surprising behavior of edge modes at interfaces between conventional and Mott topological insulators.

NAT. COMMUN. 12, 5396 (2021)
M. Bauernfeind, J. Erhardt, P. Eck, P. K. Thakur, J. Gabel, T.-N. Lee, J. Schäfer,
[NATURE, ARXIV]
S. Moser, D. Di Sante, R. Claessen and G. Sangiovanni
Design and realization of topological Dirac fermions on a triangular lattice
SHORT DESCRIPTION
We conceive, design and realize a large-gap Kane-Mele–like quantum spin Hall system on a triangular lattice. Our discovery opens new directions in the research on topological monolayers.

PRL 114, 185701 (2015)
A. Amaricci, J. C. Budich, M. Capone, B. Trauzettel and G. Sangiovanni
[APS, ARXIV]
First-order character and observable signatures of topological quantum phase transitions
SHORT DESCRIPTION
A discontinuous topological transition is identified for the first time in a microscopic model as an effect of the electronic interaction treated beyond the Hartree level.

PRL 110, 078701 (2013)
E. Assmann, P. Blaha, R. Laskowski, K. Held, S. Okamoto and G. Sangiovanni
[APS, ARXIV]
Oxide heterostructures for efficient solar cells
SHORT DESCRIPTION
Prediction of novel solar cells with higher efficiency, based on layered oxide heterostructures. This paper has been selected for a Synopsis in Physics.