Curriculum vitae

Personal Information

FIRST NAME / SURNAME	Giorgio Sangiovanni
PERMANENT ADDRESS	Universität Würzburg
	CQM – Institut für Theoretische Physik und Astrophysik
	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 - September 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 Sep-Oct 2023
INSTITUTION/PROGRAM UCSB-KITP, USA – *Quantum Materials With and Without Quasiparticles* – L. Benfatto, A. Chubukov, S. Hartnoll and D. Maslov

PERIOD Mar-Apr and Oct-Nov 2022
INSTITUTION/PROGRAM *Joliot Chair* Visiting Faculty ESPCI, Paris, France

PERIOD Sep 2025, Feb 2024, Jan 2023, Dec 2022, Oct-Dec 2021 and Jan-Feb 2019
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

~160 publications in international journals
36 PRL, 1 Science, 2 Nature, 3 Nature Phys., 8 Nature Commun., 4 PRX,
4 Nano Letters, 2 npj Quantum Materials, >65 PRB/PRR
h-index: 51 (**Google Scholar**), 44 (ISI Web-of-Science)

Invited talks and seminars

~50 invited talks in international conferences and invited seminars

Third-party funding

DFG – FOR 5249 Principal investigator of Project in ***QUAST***: *"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 ***ToCoTronics***: *"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€

Recent organization of conferences

DATE/VENUE	2025 Princeton
DESCRIPTION	PCTS "Moiré 2.0"
OTHER ORGANIZERS	B. A. Bernevig, M. Gonçalves, B. Lian, S. Wu and X. Xu

DATE/VENUE	2024 CCQ
DESCRIPTION	Flat Bands: Frustration and Correlation Physics
OTHER ORGANIZERS	A. Millis, A. Georges, J. Checkelsky and R. Comin

DATE/VENUE	2022 (postponed from 2020) 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

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)

Teaching

@UNI WÜRZBURG

- "Quantenmechanik I"
- "Statistische Physik und Thermodynamik"
- "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 N. Witt, L. Del Re, M. Crispino, F. Paoletti, G. Mirarchi, M. Verma, L. Zullo, L. Crippa, D. Di Sante, M. Karolak

PHD A. Lorenz, 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. Kuhr, 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 N. Sicheler, 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 133, 126504 (2024)
[**APS**, **ARXIV**]
SHORT DESCRIPTION

N. Wagner, D. Guerci, A. J. Millis and G. Sangiovanni
Edge zeros and boundary spinons in topological Mott insulators
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)
[**NATURE**, **ARXIV**]
SHORT DESCRIPTION

N. Wagner, L. Crippa, A. Amaricci, P. Hansmann, M. Klett, E. König, T. Schäfer, D. Di Sante, J. Cano, A. J. Millis, A. Georges and G. Sangiovanni
Mott insulators with boundary zeros
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)
[**NATURE**, **ARXIV**]
SHORT DESCRIPTION

M. Bauernfeind, J. Erhardt, P. Eck, P. K. Thakur, J. Gabel, T.-N. Lee, J. Schäfer, S. Moser, D. Di Sante, R. Claessen and G. Sangiovanni
Design and realization of topological Dirac fermions on a triangular lattice
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)
[**APS**, **ARXIV**]
SHORT DESCRIPTION

A. Amaricci, J. C. Budich, M. Capone, B. Trauzettel and G. Sangiovanni
First-order character and observable signatures of topological quantum phase transitions
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)
[**APS**, **ARXIV**]
SHORT DESCRIPTION

E. Assmann, P. Blaha, R. Laskowski, K. Held, S. Okamoto and G. Sangiovanni
Oxide heterostructures for efficient solar cells
Prediction of novel solar cells with higher efficiency, based on layered oxide heterostructures. This paper has been selected for a Synopsis in Physics.