

Part A. PERSONAL INFORMATION		CV date	27/11/2023
First and Family name	Tobias Stauber		
Social Security, Passport, ID number	X6113052C	Age	51
Researcher codes	Open Researcher and Contributor ID (ORCID)	0000-0003-0983-2420	
	SCOPUS Author ID	10539568400	
	WoS Researcher ID	K-6731-2014	

A.1. Current position

Name of University/Institution	Consejo Superior de Investigaciones Científicas (CSIC) Instituto de Ciencia de Materiales de Madrid (ICMM)		
Department	Theory of Condensed Matter Physics		
Address and Country	Sor Juana Inés de la Cruz 3, E28049 Madrid		
Phone number	91437154	E-mail	tobias.stauber@csic.es
Current position	Científico Titular	From	05/06/2014
Key words	graphene and twisted van der Waals heterostructures, strongly correlated and topological systems, nano-photonics		

A.2. Education

PhD, Licensed, Graduate	University	Year
Licenciatura	Universidad de Göttingen (Alemania)	1998
Doctorado	Universidad de Heidelberg (Alemania)	2002

A.3. General indicators of quality of scientific production

Sexenios de investigación: 4
 Tesis doctoral: 2
 Citas totales: 14.000
 Citas/año últimas 5 años: 930
 Publicaciones totales: 104
 Índice h (Scopus/Google): 38/39

Part B. CV SUMMARY

I obtained my diploma at the University of Göttingen in 1998 with Prof. K. Schönhammer and my PhD at the University of Heidelberg in 2002 in the group of Prof. F. Wegner. I then joined the group of Prof. F. Guinea at the Instituto de Ciencia de Materiales de Madrid as a Postdoc with a DAAD-scholarship. During the year 2004, I was working for the consulting company d-fine GmbH (former part of Anderson Consulting). In 2005, I returned to the group of Prof. F. Guinea with a Juan-de-la-Cierva position. From 2008-2010, I was a Research Assistant Professor at the University of Minho, Portugal and from 2010-2014, I held a Ramon-y-Cajal (tenure track) position at the University Autónoma de Madrid. Since June 2014, I am a tenured researcher at the Material Science Institute in Madrid of the Spanish National Research Council.

My research interest lies in problems of theoretical Condensed Matter Physics in general and low-dimensional quantum materials in particular. Recent topics include unconventional superconductors, magnetic and topological order as well as nanophotonics with strong light-matter interaction and plasmonics in Moiré van der Waals heterostructures. My theoretical predictions regarding the superconducting pairing-mechanism and chiral near-field response in these materials are now investigated by leading experimentalists with whom I am collaborating.

The most critical points to be considered in my CV are the publication of 102 indexed scientific articles within the past 20 years with 13,000 citations to date and h-index 38/40



(Scopus/Google). My publications include 2 Science, 3 Nature (NPhys. and 2 NComms.), 4 Nano Letters, 12 Phys. Rev. Letters and two reviews. I have presented my work at 63 conferences and workshops among them are 18 invited and 17 contributed talks. I have further organized one international conference and two seminar-series. Moreover, I was invited to 45 seminars at various international universities and research institutions.

Recently, I was invited to the Aspen Center of Physics, USA (2019/23) and spent a sabbatical leave at the University of Regensburg as Salvador de Madariaga-Fellow (2020). I also was invited to be a temporary W3-Professor (Chair) for Theoretical Physics “Emergent Quantum Phenomena in Condensed Matter” (October 2021 - March 2022) at Augsburg University imparting the Master course "Theoretical Solid-State Physics". Further, I am Honorary Professor at the Universidad Autónoma de Madrid and held continuous university classroom teaching at the undergraduate level accumulating more than 600 hours (Spanish accreditation for “Profesor Titular” (11/03/13) and “Profesor Contratado Doctor” (06/02/13) with the supervision of two Bachelor, four Master, two PhD thesis and one PostDoc.

Part C. RELEVANT MERITS

10 recent or relevant publications

R. R. Nair, P. Blake, A. N. Grigorenko, K. S. Novoselov, T.J. Booth, **T. Stauber**, N. M. R. Peres, and A. K. Geim: *Fine Structure Constant Defines Visual Transparency of Graphene*. Science **320**, 1308 (2008). (*originally published in **Science Express***)

S. S. Sunku, G. X. Ni, B. Y. Jiang, H. Yoo, A. Sternbach, A. S. McLeod, **T. Stauber**, L. Xiong, T. Taniguchi, K. Watanabe, P. Kim, M. M. Fogler, and D. N. Basov: *Quantum Photonic Crystal for Nano-Light*. Science **362**, 1153 (2018).

T. Stauber and G. González: *Encounter with a Stranger Metal*. Nature Physics **18**, 619-620 (2022)

J. González and **T. Stauber**. *Ising superconductivity induced from valley symmetry breaking in twisted trilayer graphene*. Nature Communications (accepted) (2023) **CSIC-press release**

Sai Swaroop Sunku, Dorri Halbertal, **Tobias Stauber**, Shaowen Chen, Alexander S. McLeod, Andrey Rikhter, Michael E. Berkowitz, Chiu Fan Bowen Lo, Derick E. Gonzalez-Acevedo, James C. Hone, Cory R. Dean, Michael M. Fogler, D. N. Basov: *Hyperbolic enhancement of photocurrent patterns in minimally twisted bilayer graphene*. Nature Communications **12**, 1641 (2021) (7 pages)

T. Stauber, T. Low, and G. Gómez-Santos: *Plasmon-Enhanced Near-Field Chirality in Twisted van der Waals Heterostructures*. Nano Letters **20**, 7811-8718 (2020). *Highlighted as **Cover Image of Nano Letters Issue 12***.

T. Stauber and H. Kohler: *Quasi-flat plasmonic bands in twisted bilayer graphene*. Nano Letters **16**, 6844-6849 (2016).

J. González and **T. Stauber**: *Marginal Fermi liquid in twisted bilayer graphene*. Phys. Rev. Lett. **124**, 186801 (2020). *Highlighted as **Cover Image of PRL Issue 18**. **CSIC-press release and spread by ~15 media outlets***.

J. González and **T. Stauber**. *Kohn-Luttinger superconductivity in twisted bilayer graphene*. Phys. Rev. Lett. **122**, 026801 (2019) **CSIC-press release and spread by ~15 media outlets**.



T. Stauber, T. Low, and G. Gómez-Santos: *Chiral response in twisted bilayer graphene*. Phys. Rev. Lett. 120, 046801 (2018).

Research projects as Principal Investigator

PTDC/FIS/101434/2008: Ultra-fast spectroscopy on the dynamics and relaxation of Dirac electrons in graphene. Fundação da Ciência e da Tecnologia (FCT), Portugal. 01/05/2010-31/10/2013. 161.000€. PI: T Stauber

RYC-2009-03918: Propiedades de transporte y ópticas en nano-estructuras de grafeno y materiales relacionados. Ministerio de Educación y Ciencia, Spain. 01/02/2010-31/01/2012-15.000€. PI: T. Stauber

FIS2013-44098-P: Interacción fuerte de luz-materia en heteroestructuras bidimensionales”, Ministerio de Economía y Competitividad, Spain. 01/01/2014-31/12/2015. 15.200€ PI: T. Stauber

201460I020: Interacción fuerte de luz-materia en heteroestructuras bidimensionales. Consejo Superior de Investigaciones Científicas. 05/06/2014-04/06/2015. 10.000€. PI: T. Stauber

FIS2017-82260-P: “Nuevos modelos para materiales quirales” Ministerio de Economía y Competitividad, Spain. 01/01/2018-30/09/2021. 36.600€. PI: T. Stauber and J. Gonzalez Camora

Contracts, technological or transfer merits

Postdoctoral Contract: Dr. Heiner Kohler

JAE-Intro: Carlos Ramos Marimón

Technology Transfer at Columbia University: “Invention Report #CU19203”

Supervisions

PhD-Thesis (with F. Guinea): Angel Gutiérrez Rubio (U. Autónoma Madrid, 2017)

PhD-Thesis (with J. González): Miguel Sánchez Sánchez (U. Autónoma Madrid, FPI, ongoing)

Master-Thesis (with N. Peres): Fabio Hipolito (U. Minho, Portugal, 2010).

Master-Thesis: David Noriega Pérez (U. Autónoma Madrid, 2014)

Master-Thesis (with A. Mielke): Rebecca Pons (U. Heidelberg, Germany, 2019)

Master-Thesis (with J. González, F. Sols): Miguel Sánchez Sánchez (U. Complutense Madrid, 2022)

Bachelor-Thesis: Miguel Sánchez Sánchez (U. Autónoma Madrid, 2021)

Bachelor-Thesis: José Del Olmo Sánchez (U. Autónoma Madrid, 2022)

Tutor of PhD-Thesis: Bruno Campos Amorín (2011-2013)

Tutor Beca de Colaboración: Jaime Medina Manresa (2012)

Tribunals and Committees

Member of the NCN Expert Committee of Poland (2021, 2022, 2023).

Member of 1 Habilitation-Tribunal in Germany (2020).

Member of the 8 Thesis-Tribunal in Spain, Portugal and India.

Organization of Scientific Meetings

International Organizing Committee of the International Workshop “Correlations and Coherence in Quantum Matter” (ESF/ INSTANS) in Evora/Portugal (2008).

Organizer of the weekly seminars of the Theory Department of the ICMM during the academic year 2018/2019.

Organizer of a cycle of invited seminars as scientific coordinator of the research line “2D Materials” of the ICMM in February 2020.



Invited talks in the last 5 years:

I have been **invited** to present my work at 10 international conferences in San Sebastian (Spain), USA (Minnesota, Maryland), Russia (Sochi), Portugal (Lisbon, Evora), Germany (Regensburg, Bad Honnef), and Spain (ICFO/MIT Summer School, ICFO Summer School). Furthermore, I was invited to give seminars at various institutions/universities such as U. Autónoma Madrid, LMU Múnich, U. Hamburg, CNRS (Orsay), U. Columbia.

Research stays in the last 5 years:

Aspen Center of Physics: "*Moiré Materials: Strong Correlations in Synthetic Superlattices*" (June 2019). (**INVITED, funded by Simons Foundation**)

University of Regensburg: Sabbatical leave "**Salvador de Madariaga PRX19/00024**" (January - June 2020).

University of Augsburg: W3-Professor (Chair) for Theoretical Physics "Emergent Quantum Phenomena in Condensed Matter" (October 2021 - March 2022)

Administration

Director of the Department "Theory of Condensed Matter Physics" of the ICMM. (2019-21)
Scientific Coordinator of the ICMM research line "2D Materials and van der Waals heterostructures" (2019-2021)

Member of the ICMM scientific advisory committee (since 2019) and part of the Severo Ochoa proposal of 2022.

Editorial work

Associated Editor of New Journal of Physics (since 2019)

Associated Editor of European Physical Journal B (since 2017)

Editor of the hard-cover book: *Handbook of Graphene Volume 2: Physics, Chemistry, and Biology*. (2019, 665 pages, Wiley) ISBN: 978-1-119-46959-9.

Guest Editor of the Topical Issue Advances in quasi-periodic and large commensurate systems of European Physical Journal B.

Referee

Referee of research proposals of Spain (ANEP), European Union (ERC), USA (NFS) as well as for the Belgian, Croatian, Czech, France, Polish, and Swiss grant commission.

Referee of more than 30 journals including Nature, Science, Nature Nanotechnology, Nature Materials, and Proceedings of the National Academy of Sciences.

Outreach

Innovative Teaching Project (UAM – 8 months)

Organizer and Lecturer of a new course for students of "Grado Gestión Aeronáutica" of the Economics Faculty to prepare them to take university classes in physics. (2ECTS)

Coordinator of module 7 of Visits to ICMM for students del Bachillerato (2017-2019)

Invited talk to 9th and 10th grade students at Deutsch Schule Madrid (17/5/2022)