Dr. Marco Marciani Personal: ————— CONTACT E-mail: marco.marciani@uniroma1.it INFORMATION Rome, Italy SCIENTIFIC Post-doc Theoretical Physics June 2020 – May 2022 CAREER Università di Roma "La Sapienza", Italy Mentor: Prof. Francesco Mauri, Prof. Lara Benfatto • "Assegno di ricerca", project title: Theoretic analysis of electronic and transport properties in low-dimensional materials. · Co-organizer of the Condensed Matter Theory group meetings with internal and external speakers, 2021–2022 • Workshops: - "LEES 2021", Virtual conference, June 28 – July 8, 2021 - Attended several virtual conferences (during the Covid pandemic) without direct contribution, 2020 - 2021 • Schools attended: - "The Hitchhiker's Guide to Condensed Matter and Statistical Physics", ICTP Virtual School, May 6 – June 3, 2021 Post-doc Theoretical Physics January 2018 – November 2019 Université de Lyon, Ecole normale supérieure de Lyon, France • Mentor: Dr. Pierre Delplace • Workshops: - "JMC 2018", Grenoble, France, August 27 – 31, 2018 - "2019 CLEO/Europe-EQEC", Munich, Germany, June 23 – 27, 2019 **EDUCATION** Ph.D. candidate Theoretical Physics September 2013 – September 2017 (Thesis defended on June 21, 2017) Leiden University, The Netherlands Adviser: Professor Carlo W. J. Beenakker • Thesis title: On the random-matrix theory of Majorana fermions in topological superconductors • Workshops: - "Physics with industry 2016", Leiden, The Netherlands, November 21 – 25, 2016 - "Antiferromagnetic spintronics", Mainz, Germany, September 26 – 30, 2016 - "New Trends in Topological insulators 2015', San Sebastian, Spain, July 06 – 10, 2015 - "Non-Hermitean Random matrices: 50 years after Ginibre", Judean Hills, Israel, October 22 – 27, 2014 - "Phisics@Veldhoven", Veldhoven, The Netherlands, January, 2014 – 2017 (annual dutch physics meetings) • Schools attended: - Doctoral training session "Frontiers in Condensed matter", Les Houches, Grenoble, France, August 31 – September 11, 2015.

M.Sc. program Physics October 2010 - January 2013 "Sapienza" University of Rome, Rome • Topic area: Theoretical Physics • Thesis Title: "Collective modes in multiband superconductors" Adviser: Lara Benfatto, Condensed Matter Physics • Final mark: 110/110 cum laude September 2007 – October 2010 **B.Sc. program Physics** Sapienza, University of Rome, Rome September 2008 – June 2011 • Thesis Title: An essay on Bianchi's Universes and their isotropic limit Adviser: Professor Giovanni Montani, Cosmology • Final mark: 110/110 cum laude • Attendance of the "Excellence program", restricted to selected people, year 2009-2010. TEACHING "Sapienza" University of Rome, Italy **EXPERIENCE** Lab Assistant: "System and signals Electronic Lab" Fall 2021 • Held by Professor Marco Vignati • Lab assistance to students, solving technical issues on their breadbords and answering theory questions Weekly mark of lab reports Leiden University, The Netherlands Fall 2014 - 2016 Teaching Assistant: Quantum Theory • Held by Professor Carlo W. J. Beenakker Black board exercise sessions • Weekly mark of homework assignments and exams Answering of students' questions Teaching Assistant: Random Matrix theory February – March 2017 • Held by Professor Carlo W. J. Beenakker • The course was part of the Delta ITP Advanced Topics in Theoretical Physics (spring 2017) Black board exercise sessions PROFESSIONAL "Incarico di collaborazione" April 2013 – July 2013 EXPERIENCE at Centro Nazionale delle Ricerche (CNR), Rome • Project: "Analysis of collective modes in pnictide superconductors in presence of Time Reversal Symmetry breaking" • Project leader: Lara Benfatto, Condensed Matter Physics

SOFTWARE SKILLS Programming Languages (3000+ lines):

• C, Python Numerical and Symbolic Analysis:

	 Software: Mathematica Python libraries: NumPy, SciPy, Dedalus, Matplotlib, Kwant, Tensorflow, Keras, Pandas, H5py, Mpi4py C libraries: GSL, CBLAS
	Tools:
	• LATEX, Open Office
Preprints	– M. Marciani, L. Benfatto. <i>Resistivity anisotropy from multiorbital Boltzmann equation in nematic FeSe</i> . arXiv/condmat:2202.12070 (2022) (accepted publication at PRB).
REFEREED JOURNAL PUBLICATIONS	 M. Marciani, L. Benfatto. Boltzmann electronic dc transport in multiorbital weaklydisordered crystals. Phys. Rev. B 104, 235143 (2021).
	[2] M. Marciani, P. Delplace. <i>Chiral Maxwell waves in continuous media from Berry monopoles</i> . Phys. Rev. A (2020).
	[3] J. Hermenau, S. Brinker, M. Marciani, M. Steinbrecher, M. dos Santos Dias, R. Wiesendanger, S. Lounis, J. Wiebe. <i>Stabilizing spin systems via symmetrically tailored RKKY interactions</i> . Nat. Commun. 10, 2565 (2019).
	[4] M. Marciani, C. Hübner, B. Baxevanis. <i>General scheme for stable single and multiatom nanomagnets according to symmetry selection rules</i> . Phys. Rev. B 95, 125433 (2017).
	[5] M. Marciani, H. Schomerus, C. W. J. Beenakker. <i>Effect of a tunnel barrier on the scattering from a Majorana bound state in an Andreev billiard</i> . Physica E 77, 54-64, (2016).
	[6] H. Schomerus, M. Marciani, C. W. J. Beenakker. <i>Effect of chiral symmetry on chaotic scattering from Majorana zero modes</i> . Phys. Rev. Lett. 114, 166803, (2015).
	[7] Shuo Mi, D. I. Pikulin, M. Marciani, C. W. J. Beenakker. <i>X-shaped and Y-shaped Andreev resonance profiles in a superconducting quantum dot</i> . JETP 119, 1018-1027, (2014).
	[8] M. Marciani, P. W. Brouwer, C. W. J. Beenakker. <i>Time-delay matrix, midgap spectral peak, and thermopower of an Andreev billiard</i> . Phys. Rev. B 90, 045403, (2014).
Talks	 [9] M. Marciani, L. Fanfarillo, C. Castellani, L. Benfatto. Leggett modes in iron-based superconductors as a probe of Time Reversal Symmetry Breaking. Phys. Rev. B 88, 214508, (2013).
	 "Optical topological chiral modes flowing between non-topological materials". Group seminars, LPTMC Jussieu (Sorbonne university) Paris & LPS (Paris Sud university) Orsay,

- "Periodically driven chains with particle-hole symmetry". Conference JMC 2018, Grenoble university, Grenoble, France, August 29, 2018.
- "Random Matrix theory of Andreev billiards with Majorana bound states and Timedelay". Condensed Matter Theory group seminar, Sapienza University of Rome, Rome, Italy, January 9, 2017.

France, October 14 & 17, 2019.

• " Ultrapure nebulizers: why mesh nebulizers fail to atomize ultrapure water?". Short talk at the Workshop "Physics with industry 2016", Leiden, The Netherlands November 25, 2016.

	 "Effects of symmetries on the stability of single- and multi-atom nanomagnets", Seminar to the Scanning Probe Microscopy group, Institute for Molecules and Materials, Radboud University, Nijmegen, The Netherlands, July 10, 2016.
CONFERENCE	
Posters	 "Chiral Maxwell waves in continuous media from Berry monopoles". In: LEES 2021: International conference on Low Energy Electrodynamics in Solids, Virtual conference, June 28 – July 8, 2021.
	 "Chiral Maxwell waves in continuous media from Berry monopoles". In: 2019 CLEO/Europe-EQEC, Munich, Germany, June 23 – 27, 2019.

- "General scheme for stable single- and multi-atom nanomagnets according to symmetry selection rules". In: *Antiferromagnetic spintronics*, Mainz, Germany, September 26 30, 2016.
- "Chaotic Quantum Dots with Tunnel barrier Scattering from a Majorana bound state". In: *Physics@Veldhoven 2016*, Veldhoven, The Netherlands, January 18–20, 2016.
- "Time-delay matrix, midgap spectral peak, and thermopower of an Andreev billiard". In: *Non-Hermitean Random matrices: 50 years after Ginibre*, Judean Hills, Israel, October 22 – 27, 2014.

Roma, 14/3/2022

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