Luca Chirolli

Curriculum Vitae

email: [redacted]

Education

- 2010, **Ph.D. in Physics**, University of Konstanz, Germany, supervisor Prof. G. Burkard
- 2005, **Degree in Physics**, University of Bologna, Italy. Supervisor: Prof. G. Morandi

Employment

Researcher in Theory of Condensed Matter Physics:

- 9/2019 - present, Marie Curie Global Fellow at UC Berkeley, USA, and CNR Nano, Pisa
- 4/2019 - 9/2019, visiting at Department of Physics, University of Bologna, Italy
- 2/2015 - 9/2019, researcher at IMDEA Nanoscience Foundation, Madrid, Spain
- 1/2013 - 12/2014, postdoc at ICMM - CSIC, Madrid, Spain
- 1/2010 - 12/2012, postdoc at Scuola Normale Superiore, Pisa, Italy

Teaching Experience

- Quantum Field Theory in Condensed Matter 2015 - ICMM course for graduate students
- Graphene Workshop 2014: Al Jadida - Morocco
- Theory Seminar 2009: Physics Department, Konstanz, DE
- Teaching Assistance 2007 RWTH Aachen, DE: “Introduction to theoretical physic”
- Teaching Assistance - 2006/2007 Physics Department, Basel, CH: “Solid state theory”

33 publications in pear reviewed journals, **1 preprints**, more than **500 citations**, **h-index 13**

Reviews: *Anyons in Quantum Hall Interferometry, Accepted for pub. in Nature Review Physics*
Theory of 2D crystals: graphene and beyond, Chem. Soc. Rev. **46**, 4387 (2017).
Decoherence in Solid State Qubits, Advances in Physics **57**, 225 (2008).

Grants awarded TOPOCIRCUS - 841894: EU Marie Sklodowska Curie Action: Global Fellowship

Referee Referee of Nature Comm., Phys. Rev. Lett, Phys. Rev. A and B, Europhys. Lett

Participation in funded projects

- 2014-2018. IMDEA Nanoscience PI : F. Guinea. S2013/MIT-3007 Comunidad de Madrid.
- 2012-2017. PI: F. Guinea. ERC-2011-ADG 20110209
- FIRB-IDEAS 2009-2014. PI: Prof. V. Giovannetti. MIUR

Spoken Languages Italian - Mother tongue
English - Fluent
Spanish - Fluent
German - Good

Invited Talks

- Berkeley 2019 - PD- Polariton Hall effect in transition-metal dichalcogenides
- Palermo 2018 - PD - Electronic and topological properties of 2D crystals
- Donostia 2018 - Quantum Designer Physics: Magnetic Response of Class DIII Topological Superconductors
- Trieste 2017 - ICTP - Time-reversal symmetry breaking superconductivity in Dirac materials
- Madrid 2016 - ICMM - Time-reversal symmetry breaking superconductivity in Dirac materials
- Sevilla 2016 - PD - Odd-parity time-reversal invariant superconductor in magnetic field"
- Bilbao 2016 - ECNF - Odd-parity time-reversal invariant superconductor in magnetic field"
- Basel 2016 - PD - Odd-parity time-reversal invariant superconductor in magnetic field"
- Madrid 2016 - Spinograph Conference - "Odd-parity time-reversal invariant superconductor in magnetic field"
- Zurich - 2015 - ETH - Group of Prof. G. Blatter: "Enhancement of superconductivity in atomically thin TaS2"
- Pisa 2015 - SNS - CMI group: "Enhancement of superconductivity in atomically thin TaS2"
- Konstanz 2015 - PD - Group of Prof. G. Burkard: "Enhancement of superconductivity in atomically thin TaS2"
- Paris 2014 - Group of Prof. G. Montantambaux - LSP Paris (FR): "Zero-bias conductance peak and detached layers of superconducting TaS2"
- Barcelona 2014 - ICFO - Group of Prof. M. Lewenstein: "Theory of integer quantum Hall polaritons in graphene"
- Madrid 2014 - Workshop NanSC2014: "Odd-parity superconductivity in detached flakes of TaS2"
- Pisa 2013 - SNS - CMI-group: "Interactions in electronic Mach-Zehnder interferometers with copropagating edge channels"
- Madrid 2013 - ICMM-CSIC - Group of Prof. F. Guinea: "Electronic Mach-Zehnder interferometry with copropagating spin-resolved edge states in the quantum Hall regime"
- Copenaghen 2012 - PD - Group of Prof. Flensberg: "Datta-Das spin transistor in the IQHE"
- Barcelona 2012 - ICN - Group of Prof. S. Roche: "Proposal for a Datta Das transistor in the quantum Hall regime"
- Konstanz 2011 - PD - Group of Prof. G. Burkard: "Time-bin entanglement of quasiparticles in semiconductor devices"
- Pisa 2008, SNS, QTI-group of Prof. R. Fazio: "QND measurement of superconducting flux qubit"

PD = Physics Department

List of publications

1. **Colossal orbital-Edelstein effect in non-centrosymmetric superconductors**
   L. Chirolli, M. T. Mercaldo, C. Guarcello, F. Giazotto, M. Cuoco,
   arXiv:2107.07476 (2021)

2. **Anyons in Quantum Hall Interferometry**
   M. Carrega, L.Chirolli, S. Heun, L. Sorba
   Accepted for pub. in Nature Review Physics (2021)

3. **Impact of electrostatic fields in layered crystalline BCS superconductors**
   L. Chirolli, T. Cea, F. Giazotto,
   Accepted for publication in Phys. Rev. Research (2021)

4. **Enhanced coherence in superconducting circuits via band engineering**
   L. Chirolli, J. E. Moore,
   Phys. Rev. Lett. **126**, 187701 (2021)

5. **Double single-channel Kondo coupling in graphene with Fe molecules**
   I. M. Vicent, L. Chirolli, F. Guinea,
   arXiv:2006.06723 (2020)