Mattia Udina

Scientific Curriculum Vitae

Education

2018–Now **PhD Program**, *Sapienza University of Rome*, Rome.
Thesis title: Nonlinear optical response in interacting electron systems
Supervisor: Prof. Lara Benfatto

Mar–Apr 2018 **Internship**, *IMDEA Nanociencia Institute, Graphene Group*, Madrid.
Project title: Nonlinear spectroscopy and pump-probe tests in strongly correlated systems
Tutor: Dr. Tommaso Cea

2015–2017 **Master's Degree in Physics**, *Sapienza University of Rome*, Rome.
Thesis title: Collective modes and nonlinear optical response in charge-density-wave systems
Supervisor: Prof. Lara Benfatto

2012–2015 **Bachelor's Degree in Physics**, *University of Padova*, Padova.
Thesis title: Vortici quantizzati nei superfluidi bosonici: correzioni all'equazione di Gross-Pitaevskii
Supervisor: Prof. Luca Salasnich

2008–2012 **High School Scientific Diploma**, *Liceo Scientifico G. Marinelli*, Udine.

Schools & Workshops

Jun 2019 **ASCES**, *Workshop on Strongly Correlated Electron Systems*, FTPI Institute, University of Minnesota, Minneapolis (USA).

Sep 2017 **International Doctoral Training Session**, *Frontiers of Condensed Matter*, Ecole de Physique des Houches, Les Houches (France).

Talks & Posters

Mar 2022 **Talk**, *American Physical Socielty March Meeting*, Chicago (USA).
Title: THz pump-probe spectroscopy: instantaneous response and coherent oscillations

Jul 2021 **Poster**, *LEES: International Conference on Low Energy Electrodynamics in Solids*, online.
Title: THz pump-probe spectroscopy: coherent oscillations and instantaneous response

Feb 2020 **Talk**, *SuperFOx: Conference on Superconductivity and Functional Oxides*, Santa Margherita Ligure, Genova.
Title: Theory of coherent-oscillations generation in THz pump-probe spectroscopy: from phonons to electronic collective modes

Apr 2018 **Talk**, *ICMM-CSIC Institute*, Autonomous University of Madrid, Madrid.
Title: THz pump-probe spectroscopy: accessing collective excitations in superconductors, charge-density-wave systems and correlated metals

Feb 2018 **Talk**, *Department of Physics*, University of Padova, Padova.
Title: The Higgs mode in condensed matter physics: from the superconducting to the charge-density-wave case

Oct 2017 **Poster**, *FisMat: Italian National Conference on the Physics of Matter*, ICTP-SISSA Miramare Campus, Trieste.
Title: Higgs mode and quasi-particle excitations in a charge-density-wave system

Publications

(Google Scholar Apr 2022: total citations 57, h-index 4)

2022 **Commun. Phys. (accepted)**, *F. Giorgianni, M. Udina, T. Cea, E. Paris, M. Caputo, M. Radovic, L. Boie, J. Sakai, C. W. Schneider, and S. L. Johnson, Terahertz displacive excitation of a coherent Raman-active phonon in* V_2O_3, (preprint at: https://arxiv.org/abs/2203.03656).

2022 **Faraday Discuss. (forthcoming)**, *M. Udina, J. Fiore, T. Cea, C. Castellani, G. Seibold, and L. Benfatto, THz non-linear optical response in cuprates: predominance of the BCS response over the Higgs mode*, (preprint at: https://arxiv.org/pdf/2202.01583).

2021 **Phys. Rev. B 103, 014512**, *G. Seibold, M. Udina, C. Castellani, and L. Benfatto, Third harmonic generation from collective modes in disordered superconductors.*

2021 **Nat. Comm. 12 (1), 1-8**, *F. Gabriele***, M. Udina***, and L. Benfatto, Non-linear terahertz driving of plasma waves in layered cuprates*, (*equal contribution).

2020 **Phys. Rev. Lett. 124, 197602**, *M. Udina, M. Grilli, L. Benfatto, and A. V. Chubukov, Raman response in the nematic phase of FeSe.*

2019 **Phys. Rev. B 100, 165131**, *M. Udina, T. Cea and L. Benfatto, Theory of coherent-oscillations generation in THz pump-probe spectroscopy: from phonons to electronic collective modes.*

April 26, 2022