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## APPOINTMENTS

| | |
|---|---|
| 07/2020 – present | Assistant Professor of Physics, Harvard University |
| 06/2019 - 06/2020 | Research Associate in Physics, Harvard University |
| 02/2019 - 06/2020 | Postdoctoral Research Associate, University of Illinois at Urbana-Champaign |
| 02/2017 - 01/2019 | Feodor Lynen Postdoctoral Research Fellow, University of Illinois at Urbana-Champaign |
| 03/2016 - 01/2017 | Postdoctoral Research Associate, University of Illinois at Urbana-Champaign |
| 07/2015 - 02/2016 | Postdoctoral Research Associate, Max Planck Institute for the Structure and Dynamics of Matter |

## EDUCATION

- Ph.D. in Physics *summa cum laude*, University of Hamburg, 07/2015
- M.A. in Physics in Physics 110/110 *cum laude*, University of Rome "Sapienza", 10/2010
- B.A. in Physics in Physics 110/110 *cum laude*, University of Rome "Sapienza", 10/2008

## HONORS AND AWARDS

- Harvard William F. Milton Fund, 2020
- LCLS Young Investigator Award, 2019
  - *Citation:* "For pioneering new techniques to probe high-temperature superconductivity"
  - *Given annually to early-career scientists for exceptional research using the Linac Coherent Light Source (LCLS) X-ray free-electron laser*
- Feodor Lynen Research Fellowship of the Alexander von Humboldt Foundation, 2017-2019

## PUBLICATIONS

### *Preprints*

1. Guo,X., Lee, S., Johnson, T. A., Chen, J., Vandeventer, P., Husain, A. A., Rodolakis, F., McChesney, J. L., Shafer, P., Huang, H., Lee, J., Schneeloch, J., Zhong, R., Gu, G. D., **Mitrano, M.**, & Abbamonte, P. Search for Q~0 order near a forbidden Bragg position in $Bi_{2.1}Sr_{1.9}CaCu_2O_8$+xwith resonant soft x-ray scattering. (Submitted). arXiv:2104.11665

2. Wang, Y., Chen, Y., Devereaux, T.P., Moritz, B. & **Mitrano, M**. X-ray Scattering from Light-Driven Spin Fluctuations in a Doped Mott Insulator. (Submitted). arXiv:2103.03369

3. Husain, A.A., **Mitrano, M.**, Rak, M. S., Rubeck, S. I., Yang, H., Sow, C., Maeno, Y., Batson, P. E., Abbamonte, P. Coexisting Fermi Liquid and Strange Metal phenomena in Sr2RuO4. (Submitted). arXiv:2007.06670

4. Baykusheva, D., Jang, H., Husain, A. A., Lee, S., TenHuisen, S., Zhou, P., Park, S., Kim, H., Kim, J., Kim, H-D., Kim, M., Park, S-Y., Abbamonte, P., Kim, B. J., Gu, G. D., Wang, Y. & **Mitrano, M.** Ultrafast renormalization of the onsite Coulomb repulsion in a cuprate superconductor (Submitted).

***Publications (h-index=15)***

1. Lee, S., Collini, J., Sun, S. X.-L., **Mitrano, M.**, Guo, X., Eckberg, C., Paglione, J., Fradkin, E., & Abbamonte, P. (2021): Multiple charge density waves and superconductivity nucleation at antiphase domain walls in the nematic pnictide $Ba_{1-x}Sr_xNi_2As_2$. *Physical Review Letters*, **127**, 27602.
2. Huang, E. W., Limtragool, K., Setty, C., Husain, A. A., **Mitrano, M.**, Abbamonte, P. & Phillips, P. W. (2021): Extracting correlation effects from Momentum-Resolved Electron Energy Loss Spectroscopy (M-EELS): Synergistic origin of the dispersion kink in $Bi_{2.1}Sr_{1.9}CaCu_2O_{8+x}$. *Physical Review B*, **103**, 35121.
3. **Mitrano, M.** & Wang, Y. (2020): Probing light-driven quantum materials with ultrafast resonant inelastic X-ray scattering. *Commun. Phys.* **3**, 184.
4. Peng, Y. Y., Husain, A. A., **Mitrano, M.**, Sun, S. X.-L., Johnson, T. A., Zakrzewski, A. V., MacDougall, G.J., Barbour, A., Jarrige, I., Bisogni, V. & Abbamonte, P. (2020): Enhanced Electron-Phonon Coupling for Charge-Density-Wave Formation in La1.8-xEu0.2SrxCuO4+δ. *Physical Review Letters*, **125**, 97002.
5. **Mitrano, M.,** Lee, S., Husain, A. A., Zhu, M., de la Pena, G. A., Sun, X.-L., Joe, Y. I., Reid, A. H., Wandel, S. F., Coslovich, G., Schlotter, W., van Driel, T., Schneeloch, J., Gu, G. D., Goldenfeld, N., Abbamonte, P. (2019): Evidence for photoinduced sliding of the charge-order condensate in $La_{2-x}Ba_xCuO_4$. *Physical Review B* **100**, 205125.
6. **Mitrano, M.,** Lee, S., Husain, A. A., Delacretaz, L., Zhu, M., de la Pena, G. A., Sun, X.-L., Joe, Y. I., Reid, A. H., Wandel, S. F., Coslovich, G., Schlotter, W., van Driel, T., Schneeloch, J., Gu, G. D., Hartnoll, S., Goldenfeld, N., Abbamonte, P. (2019): Ultrafast time-resolved x-ray scattering reveals diffusive charge order dynamics in $La_{2-x}Ba_xCuO_4$. *Science Advances* **5**, eaax3346.
7. Husain, A. A., **Mitrano, M.,** Rak, M. S., Rubeck, S. I., Uchoa, B., Schneeloch, J., Zhong, R., Gu, G. D., Abbamonte, P. (2019): Crossover of charge fluctuations across the strange metal phase diagram. *Physical Review X* **9**, 041062.
8. Lee, S., de la Peña Munoz, G., X. L. Sun, S., **Mitrano, M.**, Fang Y., Jang, H., Lee, J-S., Eckberg, C., Campbell, D., Collini, J., Paglione, J., de Groot, F. M. F., & Abbamonte, P. (2019): Unconventional Charge Density Wave Order in the Pnictide Superconductor $Ba(Ni_{1-x}Co_x)_2As_2$." *Physical Review Letters* **122(14),** 147601.
9. Di Pietro, P., **Mitrano, M.**, Caramazza, S., Capitani, F., Lupi, S., Postorino, P., Ripanti, F., Joseph, B., Ehlen, N., Grüneis, A., Sanna, A., Profeta, G., Dore, P., & Perucchi, A. (2018): Emergent Dirac Carriers across a Pressure-Induced Lifshitz Transition in Black Phosphorus. *Physical Review B* **98**, 165111.
10. **Mitrano, M.,** Husain, A. A., Vig, S., Kogar, A, Rak, M. S., Rubeck, S. I., Schmalian, J., Uchoa, B., Schneeloch, J., Zhong, R., Gu, G. D., Abbamonte, P. (2018): Anomalous density fluctuations in a strange metal. *Proceedings of the National Academy of Sciences* **115** (21), 5392-5396.
11. Cantaluppi, A., Buzzi, M., Jotzu, G., Nicoletti, D., **Mitrano, M.,** Pontiroli, D., Riccò, M., Perucchi, A., Di Pietro, P., Cavalleri A. (2018): Pressure tuning of light-induced superconductivity in $K_3C_{60}$. *Nature Physics* **14**, 837–841.
12. Pomarico, E., **Mitrano, M.,** Bromberger, H., Sentef, M. A., Al-Temimy, A., Coletti, C., Stöhr A., Link, S., Starke, U., Cacho, C., Chapman, R., Springate, E., Cavalleri, A. and Gierz, I. (2017): Enhanced electron-phonon coupling in graphene with periodically distorted lattice. *Physical Review B* **95**, 024304.

13. Vig, S., Husain, A., **Mitrano, M.**, Rak, M., Abbamonte, P., Kogar, A., Venema, L., Mishra, V., Johnson, P., Gu, G., Fradkin, E., & Norman, M. (2017): Measurement of the Dynamic Charge Response of Materials Using Low-Energy, Momentum-Resolved Electron Energy-Loss Spectroscopy (M-EELS). *SciPost Physics* **3(4)**, 26.

14. **Mitrano, M.**, Cantaluppi, A., Nicoletti, D., Kaiser, S., Perucchi, A., Lupi, S., Di Pietro, P., Pontiroli, D., Riccò, M., Clark, S. R., Jaksch, D., Cavalleri, A. (2016): Possible light-induced superconductivity in $K_3C_{60}$ at high temperature. *Nature* **530**, 461-464.

15. Gierz, I., **Mitrano, M.**, Bromberger, H., Cacho, C., Chapman, R., Springate, E., Link, S., Starke, U., Sachs, B., Eckstein, M., Wehling, T.O., Katsnelson, M. I., Lichtenstein, A., Cavalleri, A. (2015): Phonon-pump extreme-ultraviolet photoemission probe in graphene: Anomalous heating of Dirac carriers by lattice deformation. *Physical Review Letters* **114**, 125503.

16. Gierz, I., **Mitrano, M.**, Petersen, J. C., Cacho, C., Turcu, I. C. E., Springate, E., Stöhr, A., Köhler, A., Starke, U., & Cavalleri, A. (2015): Population Inversion in Monolayer and Bilayer Graphene. *Journal of Physics: Condensed Matter* **27**, 164204.

17. Baldassarre, L., Perucchi, A., **Mitrano, M.,** Nicoletti, D., Marini, C., Pontiroli, D., Mazzani, M., Aramini, M., Riccò, M., Giovannetti, G., Capone, M. & Lupi, S. (2015): The Strength of Electron Electron Correlation in Cs3C60. *Scientific Reports* **5**,15240.

18. Singla, R., Cotugno, G., Kaiser, S., Först, M., **Mitrano, M.**, Liu, H. Y., Cartella, A., Manzoni, C., Okamoto, H., Hasegawa, T., Clark, S. R., Jaksch, D., Cavalleri, A. (2015): THz-Frequency Modulation of the Hubbard U in an Organic Mott Insulator. *Physical Review Letters* **115**, 187401.

19. Marini, C., Joseph, B., Caramazza, S., Capitani, F., Bendele, M., **Mitrano, M.**, Chermisi, D., Mangialardo, S., Pal, B., Goyal, M., Iadecola, A., Mathon, O., Pascarelli, S., Sarma, D. D. & Postorino, P. (2014): Local Disorder Investigation in $NiS_{2-x}Se_x$ Using Raman and Ni K-Edge x-Ray Absorption Spectroscopies. *Journal of Physics: Condensed Matter* **26(45)**, 452201.

20. **Mitrano, M.**, Cotugno, G., Clark, S. R., Singla, R., Kaiser, S., Stähler, J., Beyer, R., Dressel, M., Baldassarre, L., Nicoletti, D., Perucchi, A., Hasegawa, T., Okamoto, H., Jaksch, D., Cavalleri, A. (2014): Pressure-Dependent Relaxation in the Photoexcited Mott Insulator ET-$F_2$TCNQ: Influence of Hopping and Correlations on Quasiparticle Recombination Rates. *Physical Review Letters* **112**, 117801.

21. Marini, C., Bendele, M., Joseph, B., Kantor, I., **Mitrano, M.**, Mathon, O., Baldini, M., Malavasi, L., Pascarelli, S. & Postorino, P. (2014): Probing the Electronic and Local Structural Changes across the Pressure-Induced Insulator-to-Metal Transition in $VO_2$. *Europhys. Lett* **108(3)**, 36003.

22. Gierz, I., Petersen, J. C.**, Mitrano, M.**, Cacho, C., Turcu, I. C. E., Springate, E., Stöhr, A., Köhler, A., Starke, U., Cavalleri, A. (2013): Snapshots of non-equilibrium Dirac carrier distributions in graphene. *Nature Materials* **12**, 1119-1124.

23. **Mitrano, M.**, Maroni, B., Marini, C., Hanfland, M., Joseph, B., Postorino, P., Malavasi, L. (2012): Anisotropic compression in the high-pressure regime of pure and chromium-doped vanadium dioxide. *Physical Review B* **85**, 184108.

24. Caviglia, A., Scherwitzl, R., Popovich, P., Hu, W., Bromberger, H., Singla, R., **Mitrano, M.**, Hoffmann, M. C., Kaiser, S., Zubko, P., Gariglio, S., Triscone, J. M., Först, M., Cavalleri, A. (2012): Ultrafast Strain Engineering in Complex Oxide Heterostructures. *Physical Review Letters* **108**, 136801.

## INVITED SEMINARS AND CONFERENCE PRESENTATIONS

1. University of California, Los Angeles, UC-XFEL Workshop, 07/2021
   "Dynamical control of effective interactions in quantum materials"
2. (CRC) Elasto-Q-Mat (Frankfurt-Karlsruhe-Mainz), CRC 288 Elasto-Q-Mat Colloquium, 05/2021
   "Probing light-driven superconductors with ultrafast X-ray spectroscopy"
3. University of Minnesota, Condensed Matter Seminar, 05/2021
   "Probing the finite-momentum spectrum of a light-induced superconductor"
4. International Online Workshop "Electrons, Photons, and Plasmons", 03/2021
   "Dynamical control of effective interactions in quantum materials"
5. Harvard University, Condensed Matter Physics Seminar, 02/2021
   "Probing the finite-momentum spectrum of light-induced superconductors"
6. Brookhaven National Laboratory, Condensed Matter Physics and Materials Science Seminar, 02/2021
   "Probing the finite-momentum spectrum of a light-induced superconductor"
7. Institut de Physique Theorique-CEA (Paris), Séminaire de physique statistique, 11/2020
   "Finite-momentum electronic dynamics of strange metals"
8. Clemson University, Physics Colloquium, 10/2020
   "Controlling quantum materials with light"
9. Massachusetts Institute of Technology, Chez Pierre Seminar, 05/2020
   "Probing the finite-momentum spectrum of a light-induced superconductor"
10. Center for Computational Quantum Physics (NY), Nonequilibrium Superconductivity workshop, 01/2020
    "Probing the finite-momentum spectrum of a light-induced superconductor"
11. LCLS user meeting, Ultrafast Electron Diffraction workshop, 09/2019
    "Time-resolved probes of hydrodynamic behavior in quantum materials"
12. LCLS user meeting, Young Investigator Award Plenary Talk, 09/2019
    "Ultrafast diffusive dynamics in a charge-ordered cuprate superconductor"
13. University of Oklahoma, Colloquium, 09/2019
    "Controlling quantum materials with light"
14. Aspen workshop "Active and Driven Matter: Connecting Quantum and Classical Systems", 06/2019
    "Nonequilibrium dynamics and light control of solids"
15. 11th International Conference on Inelastic X-ray Scattering (IXS2019), 06/2019
    "Ultrafast diffusive dynamics in a charge-ordered cuprate superconductor"
16. American Physical Society, March Meeting, Invited Session, 03/2019
    "Ultrafast diffusive dynamics in a charge-ordered cuprate superconductor"
17. XFEL user meeting, hRIXS@SCS Workshop, 01/2019
    "Ultrafast diffusive dynamics in a charge-ordered cuprate superconductor"
18. Harvard University, Condensed Matter Seminar, 03/2019
    "Emergent nonequilibrium dynamics of complex solids"
19. Yale University, Condensed Matter Seminar, 02/2019
    "Emergent nonequilibrium dynamics of complex solids"
20. Pennsylvania State University, Condensed Matter Seminar, 02/2019

"Emergent nonequilibrium dynamics of complex solids"

21. University of California Santa Barbara, Condensed Matter Seminar, 02/2019
"Emergent nonequilibrium dynamics of complex solids"

22. California Institute of Technology, Condensed Matter Seminar, 02/2019
"Emergent nonequilibrium dynamics of complex solids"

23. University of California Los Angeles, Condensed Matter Seminar, 02/2019
"Emergent nonequilibrium dynamics of complex solids"

24. Arizona State University, Condensed Matter Seminar, 02/2019
"Emergent nonequilibrium dynamics of complex solids"

25. Purdue University, Condensed Matter Seminar, 01/2019
"Emergent nonequilibrium dynamics of complex solids"

26. New York University, Condensed Matter Seminar, 01/2019
"Emergent nonequilibrium dynamics of complex solids"

27. University of Florida Gainesville, Condensed Matter Seminar, 01/2019
"Emergent nonequilibrium dynamics of complex solids"

28. International Conference on Electronic Spectroscopy and Structure-14 (ICESS-14), Shanghai, 10/2018
"Anomalous density fluctuations of the strange metal phase"

29. University of California San Diego, Condensed Matter Seminar, 06/2018
"Probing anomalous charge fluctuations in the cuprates"

30. Center for Computational Quantum Physics, Simons Foundation, 11/2017
"Singular density fluctuations in the strange metal phase of a copper-oxide superconductor"

31. 7$^{th}$ International NGSCES conference, Trieste, 09/2016
"Possible light-induced superconductivity in $K_3C_{60}$ at high temperature"

32. Gordon Research Conference-Ultrafast Phenomena in Cooperative Systems, 02/2016
"Nonequilibrium superconductivity in metallic $K_3C_{60}$"

33. University of Stuttgart, Condensed Matter Seminar 01/2016
"Possible light-induced superconductivity in $K_3C_{60}$ at high temperature"

34. Massachusetts Institute of Technology, Condensed Matter Seminar, 12/2015
"Possible light-induced superconductivity in $K_3C_{60}$ at high temperature"

35. University of Illinois at Urbana-Champaign, Condensed Matter Seminar, 12/2015
"Possible light-induced superconductivity in $K_3C_{60}$ at high temperature"

36. Center for Free Electron Laser Science, Molecular Physics Seminar, 11/2015
"Light control of electronic interactions in organic molecular solids"

37. 4$^{th}$ Ultrafast Dynamic Imaging of Matter, 03/2015
"Light-induced high-temperature superconductivity in $K_3C_{60}$"

38. Max Planck Research Department for Structural Dynamics, Condensed Matter Seminar, 09/ 2010
"X-Ray Diffraction at High Pressures in $V_{1-x}Cr_xO_2$"

## TEACHING EXPERIENCE

- Physics 15c, Wave Phenomena.

  Fall 2020. Instructor Evaluation: 4.24/5.00

## ADVISING

- *Postdoctoral Fellows:* Dr. Denitsa R. Baykusheva (2020-present), Dr. Flavio Giorgianni (2020)
- *PhD Thesis Advisees:* Sophia TenHuisen (2020-present), Preston Zhou (2020-present)
- *Undergraduate Research Advisees:* Nicholas J. Brennan (Spring 2021-present), Lara Zeng (Spring 2021-present)

## INTERNAL SYNERGISTIC ACTIVITIES

- Physics Department Graduate Admissions Committee, 2020-2021
- Harvard Radiation Safety Committee, 2020-present
- Physics Department Colloquium Co-organizer, 2020-2021

## EXTERNAL SYNERGISTIC ACTIVITIES

*Conference Organization:*

- "Emergent Phenomena in Quantum Systems (EPiQS) Young Investigator" Workshop
  Conference co-chair (2021) and lead organizer (2022)

*Other:*

- Journal Reviewer: *Science, Science Advances, Nature Physics, Nature Materials, Nature Communications, Physical Review Letters, Physical Review B, Physical Review X, Nature Asia Materials, ACS Nano Letters, npj Quantum Materials*
- Panel Reviewer: *SLAC MeV-UED Proposal Review Panel (2021)*
- Member of LCLS User Executive Committee (2019-2022)