



## Agostino Marinelli

Assistant Professor of Photon Science and of Particle Physics and Astrophysics  
Photon Science Directorate

### Bio

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#### BIO

Agostino Marinelli is an assistant professor of Photon Science and Particle Physics and Astrophysics at the SLAC National Accelerator Laboratory. He received his PhD in physics from the University of California, Los Angeles in 2012 and moved to SLAC shortly after as a post-doctoral research associate. He was a Panofsky Fellow from 2015 to 2019 and joined the SLAC faculty in the fall of 2019.

He is currently the head of the free-electron laser physics department, as well as the co-lead of the free-electron laser R&D program at SLAC. His research is focused on the physics and applications of X-ray free-electron lasers as well as ultrafast light sources based on advanced particle accelerators.

#### ACADEMIC APPOINTMENTS

- Assistant Professor, Photon Science Directorate
- Assistant Professor, Particle Physics and Astrophysics
- Member, Stanford PULSE Institute

#### HONORS AND AWARDS

- Panofsky Fellowship, SLAC National Accelerator Laboratory (2015-2019)
- Young Investigator Free-Electron Laser Prize, International Free-Electron Laser Conference (2015)
- Outstanding Doctoral Thesis Research in Beam Physics Award, American Physical Society (2015)
- Frank Sacherer Prize, European Physical Society (2014)

#### PROFESSIONAL EDUCATION

- PhD, University of California, Los Angeles, Physics (2012)
- Laurea Magistrale (M.S.), University of Rome, La Sapienza, Engineering Sciences (2007)
- Laurea, University of Rome, La Sapienza, Electrical Engineering (2005)

#### LINKS

- Google scholar page: <https://scholar.google.com/citations?user=6AJit0sAAAAJ&hl=it>

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

X-ray free-electron lasers and applications.

Advanced particle accelerators.

## Teaching

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### COURSES

#### 2022-23

- Electrons and Photons: APPPHYS 201, PHOTON 201 (Spr)

#### 2021-22

- Electrons and Photons: APPPHYS 201, PHOTON 201 (Win)
- Synchrotron Radiation and Free Electron Lasers: Principles and Applications.: APPPHYS 325 (Spr)

#### 2020-21

- Electrons and Photons: APPPHYS 201 (Win)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Ian Gabalski, Rachel Margraf

#### Doctoral Dissertation Advisor (AC)

Paris Franz, Zhaoheng Guo, Rafi Hessami

## Publications

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### PUBLICATIONS

- **Attosecond coherent electron motion in Auger-Meitner decay.** *Science (New York, N.Y.)*  
Li, S., Driver, T., Rosenberger, P., Champenois, E. G., Duris, J., Al-Haddad, A., Averbukh, V., Barnard, J. C., Berrah, N., Bostedt, C., Bucksbaum, P. H., Coffee, R. N., DiMauro, et al  
1800: eabj2096
- **Tunable isolated attosecond X-ray pulses with gigawatt peak power from a free-electron laser** *NATURE PHOTONICS*  
Duris, J., Li, S., Driver, T., Champenois, E. G., MacArthur, J. P., Lutman, A. A., Zhang, Z., Rosenberger, P., Aldrich, J. W., Coffee, R., Coslovich, G., Decker, F., Glowina, et al  
2020; 14 (1): 30-+
- **The time-resolved atomic, molecular and optical science instrument at the Linac Coherent Light Source.** *Journal of synchrotron radiation*  
Walter, P., Osipov, T., Lin, M. F., Cryan, J., Driver, T., Kamalov, A., Marinelli, A., Robinson, J., Seaberg, M. H., Wolf, T. J., Aldrich, J., Brown, N., Champenois, et al  
2022; 29 (Pt 4): 957-968
- **Tunable x-ray free electron laser multi-pulses with nanosecond separation.** *Scientific reports*  
Decker, F., Bane, K. L., Colucho, W., Gilevich, S., Marinelli, A., Sheppard, J. C., Turner, J. L., Turner, J. J., Vetter, S. L., Halavanau, A., Pellegrini, C., Lutman, A. A.  
2022; 12 (1): 3253
- **Characterization of single-shot attosecond pulses with angular streaking photoelectron spectra** *PHYSICAL REVIEW A*  
Zhao, X., Li, S., Driver, T., Van-Hung Hoang, Anh-Thu Le, Cryan, J. P., Marinelli, A., Lin, C. D.  
2022; 105 (1)
- **Temporal shaping of narrow-band picosecond pulses via noncolinear sum-frequency mixing of dispersion-controlled pulses** *PHYSICAL REVIEW ACCELERATORS AND BEAMS*  
Lemons, R., Neveu, N., Duris, J., Marinelli, A., Durfee, C., Carbajo, S.  
2022; 25 (1)

- **The development of attosecond XFELs for understanding ultrafast electron motion** *ADVANCES IN ATOMIC, MOLECULAR, AND OPTICAL PHYSICS, VOL. 71*  
Cryan, J. P., Driver, T., Duris, J., Guo, Z., Li, S., O'Neal, J. T., Marinelli, A., DiMauro, L. F., Perrin, H., Yelin, S. F.  
2022; 71: 1-64
- **Controllable X-Ray Pulse Trains from Enhanced Self-Amplified Spontaneous Emission.** *Physical review letters*  
Duris, J. P., MacArthur, J. P., Glownia, J. M., Li, S., Vetter, S., Miahnahri, A., Coffee, R., Hering, P., Fry, A., Welch, M. E., Lutman, A., Decker, F., Bohler, et al  
2021; 126 (10): 104802
- **Generation of Terawatt Attosecond Pulses from Relativistic Transition Radiation** *PHYSICAL REVIEW LETTERS*  
Xu, X., Cesar, D. B., Corde, S., Yakimenko, V., Hogan, M. J., Joshi, C., Marinelli, A., Mori, W. B.  
2021; 126 (9): 094801
- **Time-resolved pump-probe spectroscopy with spectral domain ghost imaging.** *Faraday discussions*  
Li, S., Driver, T., Alexander, O., Cooper, B., Garratt, D., Marinelli, A., Cryan, J. P., Marangos, J. P.  
2021
- **Inner Valence Hole Migration in Isopropanol**  
Alexander, O., Barillot, T., Cooper, B., Driver, T., Garratt, D., Li, S., Marinelli, A., Cryan, J. P., Marangos, J. P., LR25 Collaboration, IEEE  
IEEE.2021
- **Electronic Population Transfer via Impulsive Stimulated X-Ray Raman Scattering with Attosecond Soft-X-Ray Pulses.** *Physical review letters*  
O'Neal, J. T., Champenois, E. G., Oberli, S., Obaid, R., Al-Haddad, A., Barnard, J., Berrah, N., Coffee, R., Duris, J., Galinis, G., Garratt, D., Glownia, J. M., Haxton, et al  
2020; 125 (7): 073203
- **Electronic Population Transfer via Impulsive Stimulated X-Ray Raman Scattering with Attosecond Soft-X-Ray Pulses** *PHYSICAL REVIEW LETTERS*  
O'Neal, J. T., Champenois, E. G., Oberli, S., Obaid, R., Al-Haddad, A., Barnard, J., Berrah, N., Coffee, R., Duris, J., Galinis, G., Garratt, D., Glownia, J. M., Haxton, et al  
2020; 125 (7)
- **Observation of Seeded Mn K beta Stimulated X-Ray Emission Using Two-Color X-Ray Free-Electron Laser Pulses** *PHYSICAL REVIEW LETTERS*  
Kroll, T., Weninger, C., Fuller, F. D., Guetg, M. W., Benediktovitch, A., Zhang, Y., Marinelli, A., Alonso-Mori, R., Aquila, A., Liang, M., Koglin, J. E., Koralek, J., Sokaras, et al  
2020; 125 (3)
- **Observation of Seeded Mn K# Stimulated X-Ray Emission Using Two-Color X-Ray Free-Electron Laser Pulses.** *Physical review letters*  
Kroll, T., Weninger, C., Fuller, F. D., Guetg, M. W., Benediktovitch, A., Zhang, Y., Marinelli, A., Alonso-Mori, R., Aquila, A., Liang, M., Koglin, J. E., Koralek, J., Sokaras, et al  
2020; 125 (3): 037404
- **Structural dynamics in proteins induced by and probed with X-ray free-electron laser pulses.** *Nature communications*  
Nass, K., Gorel, A., Abdullah, M. M., V Martin, A., Kloos, M., Marinelli, A., Aquila, A., Barends, T. R., Decker, F., Bruce Doak, R., Foucar, L., Hartmann, E., Hilpert, et al  
2020; 11 (1): 1814
- **Simulation analysis and optimization of fresh-slice multistage free-electron lasers** *PHYSICAL REVIEW ACCELERATORS AND BEAMS*  
Guo, T., Guetg, M. W., Ding, Y., Marinelli, A., Wu, J., Huang, Z., Lutman, A. A.  
2020; 23 (3)
- **Attosecond transient absorption spooktroscopy: a ghost imaging approach to ultrafast absorption spectroscopy.** *Physical chemistry chemical physics : PCCP*  
Driver, T., Li, S., Champenois, E. G., Duris, J., Ratner, D., Lane, T. J., Rosenberger, P., Al-Haddad, A., Averbukh, V., Barnard, T., Berrah, N., Bostedt, C., Bucksbaum, et al  
2019
- **Phase-Stable Self-Modulation of an Electron Beam in a Magnetic Wiggler.** *Physical review letters*  
MacArthur, J. P., Duris, J., Zhang, Z., Lutman, A., Zholents, A., Xu, X., Huang, Z., Marinelli, A.  
2019; 123 (21): 214801

- **Development of ultrafast capabilities for X-ray free-electron lasers at the linac coherent light source.** *Philosophical transactions. Series A, Mathematical, physical, and engineering sciences*  
Coffee, R. N., Cryan, J. P., Duris, J., Helml, W., Li, S., Marinelli, A.  
2019; 377 (2145): 20180386
- **High-Power Femtosecond Soft X Rays from Fresh-Slice Multistage Free-Electron Lasers** *PHYSICAL REVIEW LETTERS*  
Lutman, A. A., Guetg, M. W., Maxwell, T. J., MacArthur, J. P., Ding, Y., Emma, C., Krzywinski, J., Marinelli, A., Huang, Z.  
2018; 120 (26): 264801
- **Stimulated X-Ray Emission Spectroscopy in Transition Metal Complexes** *PHYSICAL REVIEW LETTERS*  
Kroll, T., Weninger, C., Alonso-Mori, R., Sokaras, D., Zhu, D., Mercadier, L., Majety, V. P., Marinelli, A., Lutman, A., Guetg, M. W., Decker, F., Boutet, S., Aquila, et al  
2018; 120 (13): 133203
- **Characterizing isolated attosecond pulses with angular streaking** *OPTICS EXPRESS*  
Li, S., Guo, Z., Coffee, R. N., Hegazy, K., Huang, Z., Natan, A., Osipov, T., Ray, D., Marinelli, A., Cryan, J. P.  
2018; 26 (4): 4531–47
- **Fresh-slice multicolour X-ray free-electron lasers** *NATURE PHOTONICS*  
Lutman, A. A., Maxwell, T. J., MacArthur, J. P., Guetg, M. W., Berrah, N., Coffee, R. N., Ding, Y., Huang, Z., Marinelli, A., Moeller, S., Zemella, J. C.  
2016; 10 (11): 745-750
- **Polarization control in an X-ray free-electron laser** *NATURE PHOTONICS*  
Lutman, A. A., MacArthur, J. P., Ilchen, M., Lindahl, A. O., Buck, J., Coffee, R. N., Dakovski, G. L., Dammann, L., Ding, Y., Durr, H. A., Glaser, L., Grunert, J., Hartmann, et al  
2016; 10 (7): 468-472
- **Transient lattice contraction in the solid-to-plasma transition.** *Science advances*  
Ferguson, K. R., Bucher, M., Gorkhover, T., Boutet, S., Fukuzawa, H., Koglin, J. E., Kumagai, Y., Lutman, A., Marinelli, A., Messerschmidt, M., Nagaya, K., Turner, J., Ueda, et al  
2016; 2 (1)