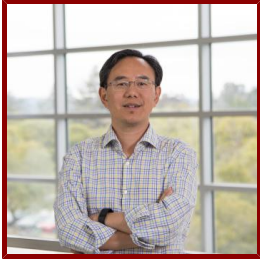


# Stanford

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## Zhirong Huang

Professor of Photon Science, of Particle Physics and Astrophysics and, by courtesy, of Applied Physics

Photon Science Directorate

### Bio

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#### ACADEMIC APPOINTMENTS

- Professor, Photon Science Directorate
- Professor, Particle Physics and Astrophysics
- Professor (By courtesy), Applied Physics
- Principal Investigator, Stanford PULSE Institute

#### HONORS AND AWARDS

- Fellow, American Physical Society (2015)
- Guest Professorship, Peking University (2014-2015)
- International Free Electron Laser Prize, FEL conference (2014)
- Achievement in Accelerator Physics and Technology Prize, U.S. Particle Accelerator School (2011)
- Division of Beam Physics Dissertation Award, American Physical Society (1998)

#### PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Physics (1998)
- B.S., Caltech , Physics (1992)

### Teaching

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#### COURSES

##### 2024-25

- Advanced Topics in Accelerator Physics: APPPHYS 220 (Win)

##### 2021-22

- Accelerators and Beams: Tools of Discovery and Innovation: PHYSICS 155 (Spr)

#### STANFORD ADVISEES

##### Doctoral Dissertation Reader (AC)

Paris Franz, Rafi Hessami, Sean Littleton

##### Postdoctoral Faculty Sponsor

Roussel Rahman

**Doctoral Dissertation Advisor (AC)**

Madison Singleton

**Doctoral Dissertation Co-Advisor (AC)**

River Robles

**Publications**

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**PUBLICATIONS**

- **Laguerre-Gaussian Mode Laser Heater for Microbunching Instability Suppression in Free-Electron Lasers.** *Physical review letters*  
Tang, J., Lemons, R., Liu, W., Vetter, S., Maxwell, T., Decker, F. J., Lutman, A., Krzywinski, J., Marcus, G., Moeller, S., Huang, Z., Ratner, D., Carbajo, et al  
2020; 124 (13): 134801
- **Laguerre-Gaussian Mode Laser Heater for Microbunching Instability Suppression in Free-Electron Lasers** *PHYSICAL REVIEW LETTERS*  
Tang, J., Liu, W., Lemons, R., Vetter, S., Maxwell, T., Decker, F., Lutman, A., Krzywinski, J., Marcus, G., Moeller, S., Ratner, D., Huang, Z., Carbajo, et al  
2020; 124 (13)
- **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)
- **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+
- **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
- **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)
- **Generation and Characterization of Attosecond Pulses from an X-ray Free-electron Laser**  
Li, S., Rosenberger, P., Champenois, E. G., Driver, T., Bucksbaum, P. H., Coffee, R., Gattton, A., Hartmann, G., Helml, W., Huang, Z., Knurr, J., Kling, M. F., Lin, et al  
IEEE.2019
- **Laguerre-Gaussian Mode Laser Heater for Microbunching Instability Suppression in Free Electron Lasers**  
Tang, J., Liu, W., Lemons, R., Vetter, S., Maxwell, T., Decker, F., Lutman, A., Krzywinski, J., Marcus, G., Moeller, S., Ratner, D., Huang, Z., Carbajo, et al  
IEEE.2019
- **Microbunch Rotation and Coherent Undulator Radiation from a Kicked Electron Beam** *PHYSICAL REVIEW X*  
MacArthur, J. P., Lutman, A. A., Krzywinski, J., Huang, Z.  
2018; 8 (4)
- **Laguerre-Gaussian and beamlet array as second generation laser heater profiles** *PHYSICAL REVIEW ACCELERATORS AND BEAMS*  
Liebster, N., Tang, J., Ratner, D., Liu, W., Vetter, S., Huang, Z., Carbajo, S.  
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- **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.  
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- **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
  - **Linac Coherent Light Source: The first five years** *REVIEWS OF MODERN PHYSICS*  
Bostedt, C., Boutet, S., Fritz, D. M., Huang, Z., Lee, H. J., Lemke, H. T., Robert, A., Schlotter, W. F., Turner, J. J., Williams, G. J.  
2016; 88 (1)
  - **Analysis of shot noise suppression for electron beams** *PHYSICAL REVIEW SPECIAL TOPICS-ACCELERATORS AND BEAMS*  
Ratner, D., Huang, Z., Stupakov, G.  
2011; 14 (6)
  - **Two-chicane compressed harmonic generation of soft x rays** *PHYSICAL REVIEW SPECIAL TOPICS-ACCELERATORS AND BEAMS*  
Ratner, D., Chao, A., Huang, Z.  
2011; 14 (2)
  - **Analysis of slice transverse emittance evolution in a photocathode RF gun** *International Workshop on Frontiers in FEL Physics and Related Topics*  
Huang, Z., Ding, Y., Qiang, J.  
ELSEVIER SCIENCE BV.2008: 148–51
  - **Analytical analysis of longitudinal space charge effects for a bunched beam with radial dependence** *PHYSICAL REVIEW SPECIAL TOPICS-ACCELERATORS AND BEAMS*  
Wu, J., Huang, Z., Emma, P.  
2008; 11 (4)
  - **Statistical analysis of crossed undulator for polarization control in a self-amplified spontaneous emission free electron laser** *PHYSICAL REVIEW SPECIAL TOPICS-ACCELERATORS AND BEAMS*  
Ding, Y., Huang, Z.  
2008; 11 (3)
  - **Review of x-ray free-electron laser theory** *PHYSICAL REVIEW SPECIAL TOPICS-ACCELERATORS AND BEAMS*  
Huang, Z., Kim, K.  
2007; 10 (3)
  - **Optical klystron enhancement to self-amplified spontaneous emission free electron lasers** *PHYSICAL REVIEW SPECIAL TOPICS-ACCELERATORS AND BEAMS*  
Ding, Y., Emma, P., Huang, Z., Kumar, V.  
2006; 9 (7)
  - **Fully coherent x-ray pulses from a regenerative-amplifier free-electron laser** *PHYSICAL REVIEW LETTERS*  
Huang, Z. R., Ruth, R. D.  
2006; 96 (14)
  - **RADIATION REACTION IN A CONTINUOUS FOCUSING CHANNEL** *PHYSICAL REVIEW LETTERS*  
Huang, Z., Chen, P., Ruth, R. D.  
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