

## Yuelin Li

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### Professional Experiences

#### Accelerator Systems Division, Argonne National Laboratory (ANL), Argonne, Illinois

2002-present  
Physicist

##### Research

- Application of laser techniques in accelerators,
  - Electron beam characterization using electro-optical sampling;
  - 3D laser pulse shaping for photoinjectors;
  - UV laser pulse propagation simulation for photoinjectors.
- Photoinjector simulation with 3D laser pulse shaping
- Large scale laser plasma accelerator simulation
  - Controlling wave breaking/electron injection in the bubble region
  - Dynamics of beams in the bubble regime and the radiation
  - Ion acceleration
- Radiation source R&D based on laser-beam interaction
- Experimental physics of free-electron lasers and femtosecond statistic optics

2000-2002  
Assistant  
Physicist

##### Funding

PI and co-PI on LDRDs and other projects,

- co-PI, Beam control for energy recovery linacs: dynamics and diagnostics (ANL LDRD, pending), \$ 200 k, 2007
- co-PI, Injector for energy recovery linac (ANL LDRD, pending), \$350 k, 2007
- PI, Large scale simulation of laser plasma interaction at relativistic intensity (ANL LDRD), \$ 360 k, 2006-2008
- PI, Advanced Photon Source photoinjector upgrade (APS project), \$ 420 k, 2005 -
- PI and co-PI, Laser plasma accelerator in the bubble regime (ANL LDRD), \$ 250 k, 2007
- PI/co-PI, Laser techniques in accelerators (ANL LDRD), \$ 420 k, 2004-2006
- co-PI, Investigation of coherent synchrotron radiation effects on bunch-compresses bright electron beams (ANL LDRD), \$ 50 k, 2006
- co-PI, Development of the advanced beam diagnostics test bed at APS (ANL LDRD), \$50k, 2006

##### Collaboration

- Fermi National Accelerator Facility, EO for electron beam measurement
- Northern Illinois University, EO for electron beam measurement
- Stanford Linac Accelerator Center, laser pulse shaping
- Brookhaven National Laboratory, gun simulation with shaped laser pulse, FEL
- Shanghai Institute of Optical and Fine Mechanics, China, on laser plasma simulation
- Tech-X Corp, laser plasma simulation
- Duke University, FROG measurement on FEL

#### Lawrence Livermore National Laboratory (LLNL), California

Visiting Scientist  
12/1997-  
11/1999

##### Research

- Intense, table-top coherent light source research and development
- High intensity, ultrashort pulse laser-matter interactions

##### Funding

- Co-PI on LDRD, ~\$500 k, 1998-1999

## **Institute for Physical Science and Technology, University of Maryland, Maryland**

Research Associate

12/1996-

### **Research**

11/1997

- Laser particle acceleration and compact x-ray light sources
- Propagation of the laser pulse in underdense plasmas, developed novel FROG diagnostics

## **Institut für Optik und Quantenelektronik, Friedrich-Schiller Universität, Germany**

Visiting Scientist

07/1996-

### **Research**

11/1996

- Table-top coherent X-ray sources
- Simulation/theory of innershell photopumping X-ray laser

## **Max-Planck Institut für Quantenoptik, Germany**

Alexander von Humboldt and Max-Planck Society Fellow

06/1993-

### **Research**

02/1996

- Experiments on physics of laser-matter interactions and X-ray lasers, demonstration and optimization of many lasing systems at short wavelengths.
- Laser plasma diagnostics

## **Central Laser Facility, Rutherford-Appleton Laboratory, England**

Royal Society Fellow

02/1993-

### **Research**

05/1993

- Experiment and simulation of recombination X-ray lasers

## **Shanghai Institute of Optics and Fine Mechanics, China**

Assistant Research Professor

03/1991-

### **Research**

11/1996

- Physics of laser-matter interactions and laser plasma based X-ray lasers
- X-ray lasers related target physics
- Laser plasma diagnostics

## **Education**

09/1986-

### **Doctorate in Optical Physics**

03/1991

Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, Shanghai, China

09/1982-

### **Bachelor of Science**

06/1986

Peking University, Beijing, China  
Major in Physics

## **Honors**

03/1995-

**Max-Planck Society Fellowship**, Germany

02/1996

06/1993-

**Alexander von Humboldt Fellowship**, Germany

02/1995

02/1993-

**Royal Society Fellowship**, England

05/1993

05/1992

**Distinguished Young Scientist**, Shanghai Branch of Chinese Academy of Sciences, China

12/1991

**President Award for Graduate Students**, Chinese Academy of Sciences, China

## **Other Professional Activities**

Referee for Physical Review Letters, Physical Review, Optics Letters, Optical Express, Journal of The Optical Society of America, Applied Physics B, etc

2004-

Marquis Who's Who in Science and Engineering.

2004-2005

Technical Committee of LCLS drive laser system, SLAC, Stanford University

2007-

Invited to teach a course at the United States Particle Accelerator School on “Application of Lasers to Accelerators” during the summer 2008 session.

**Language**

Chinese

Native tongue (Mandarin)

English

Proficient in writing and speaking

German

Basic reading and conversation