

Chengyuan Ding

morgan.pku@gmail.com

2300 Arapahoe Ave, Apt 351, Boulder, CO, 80302. Tel: (720)-308-6501

Education

University of Colorado at Boulder, JILA and Department of Physics Boulder, CO

- Ph.D. in Physics, Expected May 2014.
- M. S. in Physics, May 2013.

Peking University, State Key Laboratory for Mesoscopic Physics Beijing, China

- M.S. in Optics, May 2008.

Nankai University Tianjing, China

- B.S. in Physics, May 2004.

Experience

JILA, University of Colorado at Boulder Boulder, CO

Research assistant with Dr. Murnane and Dr. Kapteyn, 2009-present

Development of ultrafast laser system from mid-infrared to soft X-ray region

- Implemented the brightest coherent table-top soft X-ray to-date, up to 200 eV (6 nm), by high-order harmonics generation, **a three order-of-magnitude increase to all past works.**
- Implemented pulse duration of 10 fs, pulse energy of 35 uJ, 267 nm laser pulse by a wave mixing up-conversion process, a 5 times increase to past works in less than 10 fs region.

Spectroscopic researches on Atoms, Molecules and Quantum Dots

- Investigated the ultrafast dynamics of gas molecules and charge transfer in solar-cell material (P3HT-PCBM) by soft X-ray transient absorption spectroscopy.
- Investigated the multiple rescattering in above threshold ionization and measured the evanescent electron wave function of quantum dots by velocity map imaging spectroscopy.

KMLabs Inc. Leading company in Ultrafast 1855 South 57th Court, Boulder, CO

Intern 2012-present

- Designed and implemented the first 10 mJ single-stage Ti:Sapphire regenerative laser amplifier, which won **2013 CLEO/Laser focus world innovation award.**
- Investigated femto-second laser machining technique on modifying the X-ray generation setup; improved the X-ray flux significantly by the precise machining.

State Key Laboratory for Mesoscopic Physics, Peking University Beijing, China

Research assistant with Dr. Hu and Dr. Gong 2006-2008

- Implemented ultrafast low pump all optical devices by two dimensional photonic crystals.
- Investigated the two dimensional periodic structured surface plasmonic devices.

Pulications

- **Chengyuan Ding**, W. Xiong, Ti. Fan, D. D. Hickstein, T. Popmintchev, X. Zhang, M. Walls, M. M. Murnane, and H. C. Kapteyn, "High flux coherent supercontinuum soft X-ray source driven by a single-stage 10 mJ, kHz, Ti:sapphire laser amplifier," *Optics Express*, under review.
- W. Xiong, D. D. Hickstein , K. J. Schnitzenbaumer , J. L. Ellis , B. B. Palm , K. E. Keister, **Chengyuan Ding**, L. Miaja-Avila , G. Dukovic , J. L. Jimenez, M. M. Murnane , and H. C. Kapteyn, "Photoelectron Spectroscopy of CdSe Nanocrystals in the Gas Phase: A Direct Measure of the Evanescent Electron Wave Function of Quantum Dots," *Nano Lett.* 13, 2924 (2013).
- D. D. Hickstein, P. Ranitovic, Stefan Witte, X.-M. Tong, Y. Huismans, P. Arpin, X. Zhou, K. E. Keister, C. W. Hogle, B. Zhang, **Chengyuan Ding**, P. Johnsson, N. Tushima, M. J. J. Vrakking, M. M. Murnane, and H. C. Kapteyn, "Direct Visualization of Laser-Driven Electron Multiple Scattering and Tunneling Distance in Strong-Field Ionization," *Phys. Rev. Lett.* 109, 073004 (2012).
- X. Hu, P. Jiang, **Chengyuan Ding**, H. Yang, Q. Gong, "Picosecond and low-power all-optical switching based on an organic photonic bandgap microcavity," *Nature Photonics* 2, 185 (2008).
- **Chengyuan Ding**, X. Hu, P. Jiang, and Q. Gong, "Tunable surface plasmon polariton microcavity," *Phys. Lett. A*, 372, 4536 (2008).
- X. Hu, P. Jiang, **Chengyuan Ding**, and Q. Gong, "All-optical tunable narrow-band organic photonic crystal filter", *Appl. Phys. B: Lasers and Optics*, 87, 255 (2007).
- P. Jiang, **Chengyuan ding**, X. Hu, Q. Gong, "Tunable double-channel filter based on two-dimensional ferroelectric photonic crystals", *Phys. Lett. A*, 363, 332 (2007).

Skills & Techniques

- Ultrafast Ti:Sapphire laser amplifier: regenerative amplifier and multipass amplifier.
- Ultrafast pump laser: Nd:YAG laser and Nd:YLF laser.
- Optical parametric amplification to generate ultrafast near infrared and mid infrared light.
- Pulse shaping technique to shape and compress amplified laser pulse.
- Cryogenic cooling technique for solid state laser.
- Wave mixing up-conversion to generate ultraviolet, extreme ultraviolet, and soft X-ray.
- Femto-second laser precision machining and CO₂ laser machining.
- Ultrahigh vacuum system design.
- Nanometer scale surface plasmonic devices and photonic crystal devices.
- Spectroscopies: transient absorption spectroscopy, photon-emission spectroscopy, high order harmonic spectroscopy, velocity map imaging spectroscopy.
- Computer Language and Software: Matlab, C, Fortran, Labview, Mathematica, FDTD, AutoCAD, Origins.