

Christopher Mancuso

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Education: 2011 University of Delaware, Magna Cum Laude: BS in Physics, Minor in Math

Work/Research Experience

2011-Present- Graduate Research Assistant, Kapteyn/Murnane Group, JILA/Dept. Physics U. of Colorado

- Development of new ultrafast lasers operating in the mid-infrared spectrum
- Testing new approaches to generate a bright, coherent tabletop x-ray laser

2010 - Teaching Assistant for an Introductory Physics Class, University of Delaware

- Responsible for teaching 3 discussion sections and grading exams

2009-2011 -Undergraduate Research, Advisor Dr. Barry Walker, Physics and Astronomy, Univ. of Delaware

- Responsible for running an ultrafast terawatt (10^{12} Watt) laser system and collecting and analyzing data from the high intensity laser's interactions
- Ability to work with equipment in lab (oscilloscopes, photomultiplier tubes, scintillators)
- Basic fabrication such as soldering or machining (milling, lathing)
- Basic knowledge of LabVIEW programming, AutoCAD design, instrumentation, electronics and vacuum pump maintenance

2002-2007 - Cryptologic Linguist-Arabic, United States Marine Corps

- Responsible for collecting and translating audio and web-based interceptions in support of U.S. and NATO forces abroad
- Production, handling and disposal of classified information
- Deployment to Ramadi, Iraq in support of Operation Iraqi Freedom

Publications

- Generation of Bright Isolated Attosecond Soft X-Ray Pulses Driven by Multi-Cycle Mid-Infrared Lasers. M.C. Chen, C. Mancuso, C. Hernandez-Garcia, F. Dollar, B. Galloway, D. Popmintchev, B. Langdon, A. Auger, P.C. Huang, B.C. Walker, L. Plaja, A. Jaron-Becker, A. Becker, M.M Murnane, H.C. Kapteyn, T. Popmintchev. (Submitted 2014)
- Electron Shell Ionization of Atoms with Classical, Relativistic Scattering. N. Ekanayake, S. Luo, P.D. Grugan, W.B. Crosby, A.D. Camilo, C.V. McCowan, R. Scalzi, A. Tramontozzi, L.E. Howard, S.J. Wells, C. Mancuso, T. Stanev, M.F. DeCamp, and B.C. Walker. Physical Review Letters **110**, 203003 (2013)
- Rescattering nonsequential ionization of Ne^{4+} , Ne^{5+} , Kr^{5+} , Kr^{6+} , Kr^{7+} , and Kr^{8+} in a strong, ultraviolet, ultrashort laser pulse. N Ekanayake, S. Luo, B.L. Wen, L.E. Howard, S.J. Wells, M. Videtto, C. Mancuso, T. Stanev, Z. Condon, S. LeMar, A.D. Camilo, R. Toth, W.B. Crosby, P.D. Grugan, M.F. DeCamp, and B.C. Walker. Physical Review A **86**, 043402 (2012)
- Classical study of ultrastrong nonperturbative-field interactions with a one-electron atom: Validity of the dipole approximation for the bound state interaction. P.D. Grugan, S. Luo, M. Videtto, C. Mancuso, and B.C. Walker. Physical Review A **85**, 053407 (2012)
- Dependence of Carbon Fragments from Methane in Strong and Ultrastrong Elliptically Polarized Laser Fields N. Ekanayake, B.L Wen, L.E. Howard, S.J Wells, M. Videtto, C. Mancuso, T. Stanev, Z. Condon, S. LeMar, A.D Camilo, R. Toth, M.F. DeCamp, and B.C. Walker. Journal of Physics B **44**, 045604 (2011) (featured on cover)
- Ionization of Ethane, Butane, and Octane in Strong Laser Fields Sasi Palaniyappan, Rob Mitchell, N. Ekanayake, A. M. Watts, S. L. White, Rob Sauer, L. E. Howard, M. Videtto, C. Mancuso, S. J. Wells, T. Stanev, B. L. Wen, M. F. Decamp, and B. C. Walker. Physical Review A **82**, 043433 (2010)
- Photo-ionization from the Ultra-Intense Field: Response of Atomic Xenon A.D DiChiara, I Ghebregziabher, J.M. Waesche, T. Stanev, N. Ekanayake, L.R. Barclay, S. J. Wells, A. Watts, M. Videtto, C. A. Mancuso and B. C. Walker. Physical Review A **81**, 043417 (2010)

Proceedings, Talks, and Posters

- Generation of Bright Isolated Attosecond Soft X-Ray Pulses Driven by Multi-Cycle Mid-Infrared Lasers. C. Mancuso, M.C. Chen, C. Hernandez-Garcia, F. Dollar, B. Galloway, D. Popmintchev, B. Langdon, A. Auger, P.C. Huang, B.C. Walker, L. Plaja, A. Jaron-Becker, A. Becker, M.M Murnane, H.C. Kapteyn, T. Popmintchev. (Submitted 2014)
- Electron Shell Ionization of Atoms with Classical, Relativistic Scattering. N. Ekanayake, S. Luo, P.D. Grugan, W.B. Crosby, A.D. Camilo, C.V. McCowan, R. Scalzi, A. Tramontozzi, L.E. Howard, S.J. Wells,

C. Mancuso, T. Stanev, M.F. DeCamp, and B.C. Walker. High-Intensity Lasers and High-Field Phenomena Conference – March 2014

- Generation and Characterization of Ultrahigh Harmonics Up to the keV X-ray Regime. C. Mancuso, T. Popmintchev, M.M. Murnane, and H.C. Kaypteyn. School and Theory and Mathematics Modeling of Ultrashort Pulse Propagation - July 2013
- Electron Shell Ionization of Atoms with Classical, Relativistic Scattering. N. Ekanayake, S. Luo, P.D. Grugan, W.B. Crosby, A.D. Camilo, C.V. McCowan, R. Scalzi, A. Tramontozzi, L.E. Howard, S.J. Wells, C. Mancuso, T. Stanev, M.F. DeCamp, and B.C. Walker. CLEO – June 2013
- Ultrastrong Field Ionization in an Ultraviolet, Ultrafast Laser Field. N. Ekanayake, Sui Luo, B.L Wen, L.E. Howard, S.J. Wells, M. Videtto, C. Mancuso, T. Stanev, Z. Condon, S. LeMar, A.D. Camilo, R. Toth, M.F. DeCamp, V.O. Lorenz and B.C Walker. Gordon Research Conference on Multiphoton Processes – June 2012
- Ionization in Ultrastrong Fields: Validity of the Dipole Approximation. P.D. Grugan, S. Luo, M. Videtto, C. Mancuso, V.O. Lorenz, M.F. DeCamp, and B.C. Walker. Gordon Research Conference on Multiphoton Processes – June 2012
- Effects of Ultra-Intense Electric and Magnetic Fields on Classical Ionization. P. Grugan, S.X. Luo, M. Videtto, C. Mancuso, and B.C. Walker. DAMOP – June 2011
- Dependence of Carbon Fragments from Methane in Strong and Ultrastrong Elliptically Polarized Laser Fields. N. Ekanayake, B.L. Wen, L.E. Howard, S.J. Wells, M. Videtto, C. Mancuso, T. Stanev, Z. Condon, S. LeMar, A.D. Camilo, R. Toth, M.F. DeCamp, and B.C. Walker. DAMOP – June 2011
- Polarization Dependence of Carbon Fragments from Methane in Strong and Ultrastrong Laser Fields. N. Ekanayake, B.L. Wen, L.E. Howard, S.J. Wells, M. Videtto, C. Mancuso, T. Stanev, Z. Condon, S. LeMar, A.D. Camilo, R. Toth, M.F. DeCamp, and B.C. Walker. CLEO/QELS – May 2011
- Ionization of Ethane, Butane, and Octane in Strong Laser Fields C. Mancuso, N. Ekanayake, and B.C. Walker, University of Delaware Undergraduate Research Symposium – April 2011
- High Charge State, Ultrastrong Field Ionization of Ethane, Butane, Octane. L.E. Howard, L.R. Barclay, S.J. Wells, M. Videtto, C. Mancuso, T. Stanev, Z. Condon, S. LeMar, A.D. Camilo, R. Toth, M.F. DeCamp, and B.C. Walker. Gordon Research Conference on Multiphoton Processes – June 2010
- Polarization Dependence in the Ionization of Methane. C. Mancuso, S.J. Wells, N. Ekanayake, B.C. Walker. University of Delaware Undergraduate Research Symposium – April 2010 and August 2010
- Relativistic MeV Photoelectrons From the Single Atom Response of Xenon to a 10^{19} W/cm² Laser Field. N. Ekanayake, I. Ghebregziabher, A.D. DiChiara, L.R. Barclay, C.A. Mancuso, S.J. Wells, B.C. Walker. Super Intense Laser-Atom Physics (SILAP)- September 2009
- Mechanisms Behind Ultra-Strong Field Interaction with Atoms and Molecules. B.C. Walker, N. Ekanayake, L.R. Barclay, A. Watts, B.L. Wen, S.J. Wells, T. Stanev, M. Videtto, C.A. Mancuso, L.E. Howard. Super Intense Laser-Atom Physics (SILAP)- September 2009

Honors and Awards

2012	Awarded and Accepted National Science Foundation Graduate Research Fellowship
2012	Awarded National Defense Science and Engineering Graduate Fellowship
2011	Robert W. Hancock Award * \$1000 award for outstanding undergraduate research at the University of Delaware
2010	C Richard Quade Award *\$1000 ward for academic excellence among physics majors at the University of Delaware
2009, 2010	NASA/Delaware Space Grant Consortium Research Funding Award - ~\$1500.00 per summer
2009, 2010	Summer Scholar Research Program Award - \$3500 per summer
2009	NASA/Delaware Space Grant Consortium Undergraduate Tuition Award - \$3000.00
2007-2011	Dean's List
2002-2007	Military Honors: Combat Action Ribbon, Navy and Marine Corps Achievement Medal, Iraqi Campaign Medal, Sea Service Deployment Ribbon, Global War on Terrorism Medal, National Defense Service Medal , Good Conduct Medal