

James P. Cryan

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Contact Information	Stanford PULSE Institute Mail Stop 59 SLAC National Accelerator Laboratory 2575 Sand Hill Rd. Menlo Park, CA 94025	<i>phone:</i> (650) 926-3290 <i>email:</i> jcryan@slac.stanford.edu
Research Interests	I am interested in photo-induced dynamics of atoms and molecules. I am particularly interested in the dynamics of excited states in these systems, and how energy transfer takes place inside a molecule. The relevant timescales for these interactions is typically in the range of attoseconds to picoseconds. These dynamics include photo-triggered chemistry such as non Born-Oppenheimer molecular dynamics and quantum phenomena in strong-field driven systems. I also develop tools for studying these dynamics in the time domain.	
Education	Stanford University <hr/> Ph.D. in Physics <ul style="list-style-type: none">• Thesis: <i>Strong-Field and X-ray Interaction with Aligned Molecules</i> Available at: http://purl.stanford.edu/nr036sr6407• Advisor: Philip H. Bucksbaum	2007 – 2012
	The Ohio State University <hr/> B. S. Engineering Physics with focus on Nuclear Engineering Minors: Mathematics and Chemistry <ul style="list-style-type: none">• Suma Cum Laude• Graduation with Honors• Graduation with Distinction; Advisor: Louis F. DiMauro• Thesis: <i>Coincidence Study of Rare Gases</i>	2002 – 2007
Awards and Honors	<ul style="list-style-type: none">• William E. and Diane M. Spicer Young Investigator Award• Honorable Mention NSF Graduate Fellowship• Member ΣΠΣ Physics Honor Society	2012 2007 (elected 2004)
Service	<ul style="list-style-type: none">• Photon Science Seminar Organizing Committee• Arrillaga Science Center Design Point of Contact (POC) for PULSE• Member LCLS NEH 1.1 Instrument Advisory Panel• PULSE 10-year anniversary Symposium – Chair• L2SI-Laser Conceptual Design Review Panel• LCLS-II-HE “First Experiments” planning committee• High Power Laser R&D Phase-II: Wavelength Extension CDR• Referee for various journals: Phys. Rev., IOP, etc.	2014–present 2015–present 2016–present 2016 2017 2017 2017 2010–present

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- Professional Experience** **Staff Scientist** **Dec. 2017– Present**
Stanford PULSE Institute, SLAC National Accelerator Laboratory
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- I am currently the PI of attosecond science task at the Stanford PULSE Institute. We investigate attosecond processes in photo-driven chemistry. Our recent work has focused on studying photoemission on the attosecond timescale. We have also been investigating the utility of Impulsive electronic Raman scattering with X-ray free electron lasers to study electronic coherence in molecular systems.
- Staff Scientist** **Dec. 2017– Present**
Linac Coherent Light Source, SLAC National Accelerator Laboratory
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- I joined the LCLS staff to help develop and promote an attosecond science program at the XFEL facility. In collaboration with Agostino Maranelli, we have developed and demonstrated the first soft x-ray pulses from an XFEL with sub-femtosecond pulse duration.
- Associate Staff Scientist** **Nov. 2014– Dec. 2017**
Stanford PULSE Institute, SLAC National Accelerator Laboratory
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- As the Co-PI of the attosecond science task at PULSE, I developed novel laser source to drive non-linear XUV processes. This development is crucial to understanding electronic coherence processes (charge transfer and migration) as well as the interplay between electronic and nuclear motion (Non-BOA dynamics), on attosecond timescales.
- Post Doctoral Fellow** **2012 – 2014**
Advanced Light Source, Lawrence Berkeley National Laboratory
Chemical Sciences Division, Lawrence Berkeley National Laboratory
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- During my tenure as a postdoctoral scholar I built a laser laboratory from the ground up. We developed a strong-field driven high harmonic generation (HHG) setup to produce sufficient VUV/XUV flux to drive two-photon transitions (pump/probe) in molecular systems. We used our pump/probe setup to study non-Born-Oppenheimer dynamics on small molecular systems.
- Laser Technician** **2010 – 2012**
Linac Coherent Light Source Laser Group lead by William White
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- During graduate school I worked part-time with the LCLS laser group. The LCLS facility has a diverse user community and we would provide laser support for these users. I focused on making broadly tunable optical parametric amplifiers to span from the visible range out to $\sim 15 \mu\text{m}$. I was a member of experimental teams that looked at a broad range of phenomena from gas phase AMO physics to solid-state low temperature physics.
- Graduate Student** **2007 – 2012**
Bucksbaum research group at Stanford PULSE Institute
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- A large body of my thesis work focused on creating and measuring rotational/vibrational wave packets in molecular systems. I developed numerous tools/techniques for studying these systems. I also conducted a large portion of my dissertation research at the Linac Coherent Light Source (LCLS) user facility, where I studied the dynamics of small molecules exposed to intense x-rays.
- **Teaching experience:** teaching assistant for 1 academic year.
- Undergraduate Student** **2002 – 2007**
DiMauro Research group at OSU
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- As an undergraduate student I worked with the DiMauro research group studying strong-field non-sequential multiple ionization. We collected ions in coincidence with photoelectrons
- Summer REU (**2006**)