

# Antoine Masson

PhD

1865 Oxford St  
94709 Berkeley CA, USA  
☎ +1 (510) 480 9896  
✉ amasson@lbl.gov  
📄 LinkedIn Profile



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## Skills

Design of Gas Phase Ion System	Time Of Flight, Quadrupole, Ion guide and optics, Design of ion traps, Trajectory Simulation (SIMION)
Mass Spectroscopy Technologies	Ion mobility, Electro and Nano spray, Design of Ion Source
Gas Phase Spectroscopy	Lasers, Molecular beam, Supersonic expansion, Femto-chemistry, Fluorescent Spectroscopy
Infrared Imaging	FTIR Microscope, Infrared Synchrotron Beam
CAO and Parts Making	Solidworks, Autodesk Inventor, 3D Printing, CNC, Mechanical workshop
Data Acquisitions	Electronics, Computer interfaces, Real time, Data treatment, Visualization etc.
Programming Languages	Matlab, Labview, Perl, Fortran, C, C++, Python
Theoretical Science	Ab-initio and DFT calculation, Development of new methods and algorithms, Scripts, Management of computer clusters, Parallel Computing
Electronics	Basic electricity and electronics, Arduino, Raspberry Pi, Circuit Design
Internet programming	HTML, CSS, PHP, MYSQL, Javascript, CMS
Current computer tools	Office, LATEX, Database, Pictures, MacOS, Windows, Linux

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## Work experience in scientific research lab facility

- 2015 (actual) **Post-doc at Lawrence Berkeley Lab Berkeley USA**, *Development of new ion source for mass spectrometry. In particular, development of a source combining Infrared Spectroscopy Imaging and Mass spectrometry imaging in order to study biological sample with the fast non-destruction infrared as pre-screening. My knowledge about making different kinds of parts (mounting, electrospray...) have been really helpful. This device will be used by several people from different knowledge (biologist for example) so the design of the system and software have to be robust and easy to use. I'm also supervising undergraduate students and helping them for their projects.*, LBNL and UC Berkeley, team of H-Y. Holman and E. Williams.
- 2011 2015 **Post-doc at EPFL Switzerland**, *Development of a new equipment coupling ion mobility with Time Of Flight and IR/UV cold spectroscopy. The goal is to investigate the IR spectroscopy of molecules to determine their shape. The new equipment developed can also use the ion mobility as conformer selectors. I participate actively on this project by draw and installed all the parts and equipment. I also design the software and manual. I worked in this project with a tem of an other postdoc and a PhD., LCPM, EPFL, team of Pr. Rizzo.*

- 2008 2011 **PhD at CEA France in chemical physics**, *Photodynamic of atoms embedded in gas rare cluster resolved by spectroscopy. My thesis is both experiment and theory and the goal is to resolve complex dynamics (with electronics and nuclear degrees of freedom) of model systems. I used different complex experiments (femtochemistry for example) devices to reach my goal and also developed my own theoretical code to solve complex quantum simulation*, LFP, CEA Saclay, supervisor : Pr. Gaveau.
- 2008 **Master training in chemical/physics**, LFP, CEA Saclay, supervisor : Pr. Gaveau.
- 2007 **Master training in theoretical physics**, SIMPA/PALMS Rennes, supervisor : Pr. Dunseath.

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## Education

- 2008 2011 **PhD**, *Physics/chemistry*, Université de Paris 11 et CEA Saclay.
- 2006 2008 **Master**, *Physics*, Université de Paris 6.

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## Teaching experience

- 2012 2015 **Quantum chemistry exercises**, EPFL.
- 2008 2011 **Scientific teacher in museum**, *Palais de la decouverte*, Musée de Paris.
- 2003 2009 **Tutoring**, *Physic and maths*.

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## Language Skills

French	<b>Native</b>
English	<b>Fluent</b>
German	<b>Beginner</b>

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## Leisure

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|-----------------------|-------------------|
| - Comics              | - Books           |
| - Making small movies | - Photograph      |
| - Museum              | - Do it your self |

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## Publications

### Papers

**JACS (2016)**, *Conformations of prolyl-peptide bonds in the bradykinin 1-5 fragment in solution and in the gas phase*, Lidmila Voronia, **A. Masson**,..., D.E. Clemmer and T.R. Rizzo.

**J. Chem. Phys. 143, 104313 (2015)**, *Molecular hydrogen messengers can lead to structural infidelity: A cautionary tale of protonated glycine*, **A. Masson**, E.R. Williams, and T.R. Rizzo.

**J.Am.Soc.Mass Spectrom. 10.1007 (2015)**, *Infrared Spectroscopy of Mobility-Selected H(+)-Gly-Pro-Gly-Gly (GPGG)*, **A. Masson**, M.Z. Kamrath, M.A.S. Perez, M.S. Glover, U. Rothlisberger, D.E. Clemmer, and T.R. Rizzo.

**Phys. Rev. Lett.** **113**, 12300 (2014), *Coupled Electronic and Structural Relaxation Pathways in the Postexcitation Dynamics of Rydberg States of  $BaAr_n$  Clusters*, **A. Masson**, M.-C. Heitz, J.-M. Mestdagh, M.-A. Gaveau, L. Poisson, and F. Spiegelman.

**J. Chem. Phys.** **137**, 184311 (2012), *Fluorescence emission of Ca-atom from photodissociated  $Ca_2$  in Ar doped helium droplets. II. Theoretical*, A. Hernando, **A. Masson**, M. Briant, J.-M. Mestdagh, M.-A. Gaveau and N. Halberstadt.

**J. Chem. Phys.** **137**, 184310 (2012), *Fluorescence emission of Ca-atom from photodissociated  $Ca_2$  in Ar-doped helium droplets. I. Experimental*, **A. Masson**, M. Brian, A. Hernando, N. Halberstadt, J.-M. Mestdagh and M.-A. Gaveau.

**J. Chem. Phys.** **133**, 054307 (2010), *Dynamics of highly excited barium atoms deposited on large argon clusters. I. General trends*, **A. Masson**, L. Poisson, M.-A. Gaveau, B. Soep, J.-M. Mestdagh, V. Mazet, and F. Spiegelman.

**Thesis**, *Réaction par transfert de charge métal-ligand femtochimie aux temps ultra-courts et spectroscopie de l'état de transition en gouttelette d'hélium*, tel-00649169.