

Louis JAY

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french and english languages, car and motorbike driving licence

PhD student in optics, photonics

PROFILE

- expertise in imaging and biomedical optics
- dealing with many important topics in biophysics (biophotonics, nanobiotechnology, MRI)
- experience in medical context (hospital)
- good understanding and communication skills with other communities of scientists
- good skills for explaining and presenting orally sciences (conferences, professor experience)
- generally good knowledge in optics

PROFESSIONAL EXPERIENCE

Since May 2005: PhD program "multimodal non linear imaging for corneal surgery"

- microscopy with Second and Third Harmonic Generation along the whole thickness of cornea: organ scale to cellular imaging

- designing, purchasing and calibrating a microscope prototype

- ultrafast lasers; all the components of a modern microscope : optomechanics and instrumental optics, filters, detection parts, scanning system, analogic electronics

Institut National de Recherche Scientifique. Energie, Matériaux, Télécommunications. Montréal, Canada

Maisonneuve-Rosemont Hospital Research Center. Montréal, Canada

Ophthalmology, University of Montreal. Montréal, Canada

2004 : : M.Sc. (DESS) internship: "micronic and nanometric particles having optical and magnetic properties for cosmetic and biomedical applications" (for cancer research)

- physics and chemistry of Y_2O_3 particles doping by Eu (fluorescence $X \rightarrow UV$) et particles Fe_3O_4 (magnetic properties)

- coating with SiO_2 (biocompatibility) sol-gel and coating with TiO_2 (photocatalytic properties with UV)

Colloidal systems and industrial process laboratory. Ecoles des mines de Paris. France

2002 : consulting engineer: "environmental detection of microorganisms by DNA biochips"

- Especially optics consulting to work on the conception (market research, specifications) of a lab-on-chip

- chemiluminescence signal detection, bioinformatics, microfluidics

Physics and Mechanics department of Bertin Technologies. Montigny-le-Bretonneux, France

1999 : M.Sc. internship: "molecular diffusion study by NMR/RMI with pulsed gradients"

- comparison of several statistic methods (χ^2 , entropy maximisation) to extract diffusion coefficient *in vitro* (NMR) and *in vivo* (molecules, cells)

Biological NMR laboratory. CNRS. Gif sur Yvette. France

1997 : B.A. internship: "introduction to different technologies for functional exploration in hospital"

- introduction to biomedical instrumentation (scintigraphy, cardiac scintigraphy, electrophysiology)

- special interest on scanning laser ophthalmoscopy

Biophysical and nuclear medicine department of Lariboisière Hospital. Paris. France.

SCIENTIFIC TEACHING:

2001 : physics/chemistry professor in high school. Jules Vernes High School Limours. France.

PRESENTATIONS. PUBLICATIONS (articles and conference paper written red)

2010 : Jay, L., Brocas, A., Singh, K., Brunette, I., and Ozaki, T.

"Imaging of Corneal Incisions by Second- and Third-Harmonic Generation Microscopy"

(2010) Conference on Quantum Electronics and Laser Science (QELS) – submitted

2010 : CLEO 2010 (see the conference paper)

2010 : Jay L, Dion C, Brocas A, Singh K, Kieffer JC, Brunette I, and Ozaki T.,

"High-resolution imaging of a corneal incision by second- and thirdharmonic generation microscopy"

Progress in Biomedical Optics and Imaging - Proceedings of SPIE, submitted

2010 : photonics west 2010. Poster Presentation. (see the proceedings of SPIE)

2010 : Jay L, Dion C, Brocas A, Singh K, Kieffer JC, Brunette I, and Ozaki T.,

"Observation of a Corneal Flap proceeded with an Ophthalmic Blade by Second- and Third-Harmonic Generation Microscopy"

7th Advanced Imaging Methods Workshop. Poster presentation.

2009 : Jay L, Dion C, Brocas A, Singh K, Kieffer JC, Brunette I, and Ozaki T.,

"High spatial resolution corneal imaging by simultaneous second and third harmonic generation microscopy."

3rd International Conference on Femtosecond Lasers in Ophthalmology (ICFLO-2009). Oral présentation.

2009 : Jay L, Dion C, Brocas A, Singh K, Keiffer JC, Brunette I, and Ozaki T. ,

"Second and third harmonic generation imaging of cornea and possibility of epidetection on whole eye."

Journée de l'axe cornée et segment antérieur du réseau FRSQ en Santé de la vision. Oral présentation.

2008 : Jay L., Brocas A., Singh K., Kieffer J.C., Brunette I., and Ozaki T., "Determination of porcine corneal layers with high spatial resolution by simultaneous second and third harmonic generation microscopy," Opt. Express 16, 16284 (2008).

2008 : Brocas, A., Jay, L., Mottay, E., Brunette, I., and Ozaki, T.

"Corneal imaging by second and third harmonic generation microscopy"

Progress in Biomedical Optics and Imaging - Proceedings of SPIE, 6860, art. no. 68600C

2008 : "photonics west 2008" Oral Presentation (see the proceedings of SPIE)

2008 : Brocas A., Jay L., Singh K., Mottay E., Brunette I. and Ozaki T.

"High Resolution Corneal Imaging by Second Harmonic Generation and Third Harmonic Generation"

Focus On Microscopy 2008. Oral Presentation.

2008 : Jay L, Brocas A., Singh K., Brunette I. and Ozaki T.

"High Resolution Non-Invasive Imaging of the Cornea by Epi-Detected Second Harmonic Generation and Third Harmonic Generation"

ARVO 2008. Poster presentation.

2008 : Jay, L., Brocas, A., Singh, K., Brunette, I., and Ozaki, T.

"In-vitro SHG/THG imaging of porcine cornea"

(2008) Conference on Quantum Electronics and Laser Science (QELS) - Technical Digest Series, art. no. 4552917

2008 : CLEO 2008. Oral presentation (see the conference paper)

2008 : Brocas A., Jay L., Singh K., Brunette I. and Ozaki T.
" Imagerie cornéenne in vitro par microscopie de seconde et de tierce harmonique"
ACFAS 2008. Oral Presentation.

2007 : Jay, L., Brocas, A., Singh, K., Brunette, I., and Ozaki, T.
"Multiphoton microscopy for in vivo imaging of ophthalmologic tissues"
2nd International Conference on Femtosecond Lasers in Ophthalmology (ICFLO-2007). Poster
présentation.

2007 : Jay, L., Brocas, A., Singh, K., Brunette, I., and Ozaki, T.
" Imagerie non linéaire multimodale cornéenne "
Award for best oral presentation given at annual meeting of "reseau vision 2007" Université Laval.

EDUCATION

2003-04 : "M.Sc. (DESS) Lasers, Materials, Biologic media" with honors. University Pierre et Marie Curie. Paris. France

1998-09 : "M.Sc. (DEA) Molecular Biophysics". University Pierre et Marie Curie. Paris. France

INFORMATICS SKILLS

software : IGOR PRO, LABVIEW, MATLAB, NIH-IMAGE, EXCEL
programming (basic knowledge): C, Fortran **OS** : Windows, UNIX