BIOGRAPHICAL SKETCH (updated 02/2015)

NAME **Intes, Xavier**	POSITION TITLE Associate Professor Co-Director of Biomedical Imaging Center Rensselaer Polytechnic Institute
eRA COMMONS USER NAME: intesx	

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	MM/YY	FIELD OF STUDY
University of Brest (France)	M.Sc.	1993	Physics
University of Brest (France)	D.E.A.	1994	Optronics
University of Brest (France)	Ph.D.	1998	Physics
University of Pennsylvania (USA)	Postdoc	1999-2003	Biomedical Optics

A. Personal Statement

My research focuses on application of optical techniques for biomedical imaging in pre-clinical and clinical settings. My research concentration is on functional imaging of the breast and brain, fusion with other modalities, and fluorescence molecular imaging. As a postdoctoral fellow at the University of Pennsylvania, I developed new clinical instrumentation and reconstruction software for functional and molecular imaging of thick tissue. As the Chief Scientist of Advanced Research Technologies Inc, Montreal, I oversaw the development of two time-resolved tomographic optical imaging platforms, Optix® and SoftScan®. Optix® is designed to characterize, quantify and visualize cellular and molecular events in vivo using fluorescent probes in small animals. Optix® has been deployed in more than 70 industry and academic laboratories worldwide to bring new and better treatments to patients faster. SoftScan® is an optical breast imaging device designed to improve the diagnosis and treatment of breast cancer. Softscan® is commercially available as an adjunct diagnostic tool to mammography in Canada and Europe. As a result of these previous experiences, I have gained expertise in leading complex engineering projects for pre-clinical and clinical applications based on realistic research plan and controlled budget. At Rensselaer, I continue to pursue the development of original optical imaging systems and new imaging algorithms, along with the application of these methods to optical functional and molecular imaging problems.

Biomedical Imaging Center: http:www.rpi-bic.org; *Lab web page*: http://intes-lab.bme.rpi.edu/index.shtml

B. Positions and Honors

Employment / Experience:

2012- Associate Professor, Department of Biomedical Engineering, RPI – Troy, USA
2006- 2012 Assistant Professor, Department of Biomedical Engineering, RPI – Troy, USA
2003- 2006 Chief Scientist – Advanced Research Technologies Inc., St Laurent, Quebec, Canada.
2002- 2003 Director of Research, Optical Devices Inc., Philadelphia, PA
2001- 2003 Director of Research, Medical Diagnostic Research Foundation, Philadelphia, PA
2001- 2003 Post-Doctoral Fellow, Dept. of Astronomy/Physics, University of Penn., Philadelphia, PA
2001- 2003 Post-Doctoral Fellow, Dept. of Biochemistry/Biophysics, University of Penn., Phila., PA
2000- 2001 Post-Doctoral Fellow, Department of Radiology, University of Pennsylvania, Phila., PA
1999- 2000 Visiting Scholar, Medical Diagnostic Research Foundation, Philadelphia, PA
1997- 1998 Lecturer (ATER), Dept. of Physics, University of Brest, Brest, France

Honors:

2014 Discussion Leader in the Session “Multimodal Deep-Tissue Imaging”, Gordon Conference, July 13-18, 2014
2013 Keynote Speaker Instrumentation Track, NEBEC 2013, Syracuse, NY.
2013 Senior Member OSA
2012 Senior Member SPIE
2011 NSF CAREER CBET 1149407
1994-1997 Government fellowship for Ph.D (boursier MESR), France
1994-1997 Gov. fellowship for teaching assistant training (MONITORAT), France
1994-1993 Government fellowship for D.E.A., France

Scientific Responsibilities and Activities

Professional Societies:

Associate Editor, Biomedical Optics Express - since 06/2013

Conference Chair of "Multimodal Biomedical Imaging" (BO114), BIOS January 2008-present (10 occurrences), SPIE, San Jose, CA, USA

Program Committee Member SPIE Medical Imaging Conference on Biomedical Applications in Molecular, Structural, and Functional Imaging, SPIE, February 2013- present (3 occurrences), San Diego, USA

Program Committee Member of NEUROTECHNIX 2013-present: International Congress on Neurotechnology, Electronics and Informatics.

Program Committee Member of the Bio-Optics design (BODA), OSA, April 2015, Vancouver, CA

Conference co-Chair of the Modeling-Imaging-Instrumentation track, NEBEC, April 2015, Troy, NY, USA

Discussion Leader in the Session "Multimodal Deep-Tissue Imaging", Gordon Conference, July 13-18, 2014

Organizer special session in "Advances in Molecular Optical Imaging", CLEO 2014, 8-13 June 2014, San Jose, USA.

Program Committee Member of the Bio-Optics design (BODA), OSA, April 2013, Hawaii, USA

Organizer IPRI Workshop: "Diffuse Optical Imaging", RPI, October 2011, Troy, NY, USA

Program Committee Member SPIE/OSA European Conference on Biomedical Optics, May 2011, Munich, Germany

Program Committee Member of the Bio-Optics design (BODA), OSA, April 2011, Monterey, USA

Conference Chair of the Modeling-Imaging-Instrumentation track, NEBEC, March 2011, Troy, NY, USA

Program Committee Member of the Biophotonics Conference, IEEE Photonics Society, October 2009, Blek-Antalya, Turkey

Program Committee Member of "Multimodal Biomedical Imaging" (BO114), BIOS January 2006, January 2007 (2 occurrences), SPIE, San Jose, CA, USA

Grant Review:

NIH ARRA-Challenge grant program - ZRG1 BST-M (58); NIH PAR-14-073 Shared Instrumentation Grant Program - ZRG1 SBIB-F30; NIH PA-13-347 Support for Conferences and Scientific Meetings (R13).

Reviewer for the Richard-Koselleck-programme and the Gottfried Wilhelm Leibniz Prize, Deutsche Forschungsgemeinschaft (most prestigious German award offered to world-class researcher in Germany); Maryland Industrial Partnerships Program (MIPS) - University of Maryland, College Park; Canadian Institutes of Health Research (CIHR); Research Growth Initiative (RGI), University of Wisconsin-Milwaukee; Foundation for Polish Science -Parent bridge (POMOST) program; Dutch Cancer Society; Ontario Centers of Excellence.

Journal Editorship/Review:

Associate Editor, Biomedical Optics Express, OSA, 2013-current

Invited Editor, special issue "Optical molecular Imaging", Current Molecular Imaging - 2014

Invited Editor, special issue «Diagnostic and Therapeutic Optical Imaging Techniques", Current Medical Imaging Reviews (2012)

Applied Optics, Optics Letters, JOSA A, IEEE Transactions in Medical Imaging, IEEE Transactions on Image Processing, Proceedings of the National Academy of Sciences, Technology in Cancer Research and Treatment, Breast Cancer Research, Journal of Biomedical Optics, Optical Engineering, Optics Express, Neuroimage, Biophysical Journal, Biomedical Optics Express …

Other:

Lingling Zhao, Xavier Intes, Vivek Venugopal, "Method and apparatus for optimizing illumination in a non-scanning fluorescence imaging system", RPI October 2013, United States Patent Application 61/893,465:

Xavier Intes, Frederic Lesage, Sirithy Lam: Method for Fluorescence Tomographic Imaging. ART Advanced Research Technologies October 2008: US 20080260647

Xavier Intes, Salim Djeziri: Optical Imaging Method For Tissue Characterization. ART Advanced Research Technologies January 2009: US 20090005692

Salim Djeziri, Niculae Mincu, Frederic Leblond, Olga Guilman, Xavier Intes, Mario Khayat: Method and apparatus for optical image reconstruction using contour determination. ART Advanced Research Technologies September 2008: US 20080218727

Philippe St-Jean, Frederic Lesage, Xavier Intes, Frederic Leblond: Method for selecting wavelengths for optical data acquisition. ART Advanced Research Technologies May 2006: US 20060094940

C. Peer-Reviewed Publications (*h-index=26; Number of citations>2100; Google Scholar*):

57. Q Pian, R Yao, L Zhao and **X Intes**, "Hyperspectral Time-Resolved Wide-Field Fluorescence Molecular Tomography based on Structured Light and Single Pixel-Detection," Optics Letters 40(3), 431-434 (2015).
56. F Yang, M Ozturk, L Zhao, W Cong, G Wang and **X Intes**, "High-resolution mesoscopic fluorescence molecular tomography based on compressive sensing," IEEE Biomedical Engineering 62(1), 248-255 (2015). PMID: 25137718
55. S Rajoria, L Zhao, **X Intes** and M Barroso, "FLIM-FRET for cancer application", Current Molecular Imaging, 3, 144-161 (2014).
54. Q Pian, C Wang, W Cong, G Wang and **X Intes**, "Multimodal Biomedical Optical Imaging Review: Towards Comprehensive Investigation of Biological Tissues," Current Molecular Imaging, 3, 72-87 (2014).
53. G Omer, L Zhao, **X Intes** and J Hanh, "Reduced Temporal Sampling effect on Time-Domain Fluorescence Lifetime FRET Accuracy," Journal of Biomedical Optics, 19(8), 086023 (2014). PMID25166472
52. F Long, M Ozturk, Mark Wolff, **X Intes** and S Kotha, "Dental Imaging using Mesoscopic Fluorescence Molecular Tomography: An ex vivo feasibility study," Photonics 1(4), 488-502 (2014).
51. L Zhao, H Yang, W Cong, G Wang and **X Intes**, "Lp Regularization for Early Time-Gate Fluorescence Molecular Tomography," Optics Letters 39(14), 4156-4159 (2014). PMID: 25121675
    *selected for publication in Virtual Journal for Biomedical Optics
50. L Zhao, K Abe, S Rajoria, M Barroso and **X Intes**, "Spatial Light Modulator based Active Illumination for Enhanced Dynamical Range and Accuracy of Fluorescence Lifetime Imaging in Small Animals," Biomedical Optics Express 5(3), 944-955 (2014). PMID: 24688826
49. M. Ozturk, D. Rohrbach, U. Sunar and **X. Intes**, "Mesoscopic fluorescence tomography of a photosensitizer (HPPH) 3D biodistribution in skin cancer," Academic Radiology, 21(2), 271-280 (2014). PMID: 24439340
48. K Abe, L Zhao, A Periasamy, **X Intes** and M Barroso, "Non-Invasive In Vivo Imaging of Near Infrared-labeled Transferrin in Breast Cancer Cells and Tumors Using Fluorescence Lifetime FRET," PLoS One 8(11), e80269 (2013). PMID: 24278268
47. M Ozturk, L Zhao, V Lee, G Dai and **X Intes**, "Mesoscopic fluorescence molecular tomography of reporter genes in bio printed thick tissue," Journal of Biomedical Optics 18 (10), 100501 (2013). PMID: 24091624
46. **X Intes**, "Multispectral fluorescence molecular tomography with structured light," International Innovation 9, 68-70 (2013).
45. L Zhao, K Abe, M Barroso and **X Intes**, "Active wide-field illumination for high-throughput fluorescence lifetime imaging," Optics Letters 38(20), 3976-3979 (2013). PMID: 24081103
44. V Venugopal and **X Intes**, "Adaptive wide-field optical tomography," Journal of Biomedical Optics 18(3), 036006 (2013). PMID: 23475290
43. M Pimpalkhare, J Chen, V Venugopal and **X Intes**, "Ex vivo fluorescence molecular tomography of the spine," International Journal of Biomedical Imaging, 942326 (2012). PMID: 23197973
42. V Venugopal, J Chen, M Barrosso and **X Intes**, "Quantitative tomographic imaging of intermolecular FRET in small animals," Biomedical Optics Express 3(12), 3161-3175 (2012). PMID: 23243567
    *one of Top Downloaded Articles in Image Reconstruction and Inverse Problems of Biomedical Optics Express in 2014
41. J Chen, Q Fang and **X Intes**, "Mesh-based Monte Carlo method in time-domain wide-field fluorescence molecular tomography", Journal of Biomedical Optics 17(10), 106009 (2012). PMID: 23224008

40. L Zhao, V Lee, G Dai and **X Intes**, "The integration of 3-D cell printing and mesoscopic fluorescence molecular tomography of vascular constructs within thick hydrogel scaffolds," Biomaterials 33 (21), 5325–5332 (2012). PMID: 22531221

39. V Venugopal and **X Intes**, "Recent advances in optical mammography," Current Medical Imaging Reviews 8(4), 244-259 (2012).

38. J Chen and **X Intes**, "Comparison of Monte Carlo Methods for Fluorescence Molecular Tomography - Computational Efficiency," Medical Physics 38 (10), 5788-5798 (2011). PMID: 21992393

37. J Chen, V Venugopal and **X Intes**, "Monte Carlo based method for fluorescence tomographic imaging with lifetime multiplexing using time gates," Biomedical Optics Express 2, 871-886 (2011). PMID: 21483610
*one of Top Downloaded Articles in Image Reconstruction and Inverse Problems of Biomedical Optics Express in 2012

36. V Venugopal, J Chen, F Lesage and **X Intes**, "Full-field time-resolved fluorescence tomography of small animals," Optics Letters 35, 3189-3191 (2010). PMID: 20890329
*selected for publication in Virtual Journal for Biomedical Optics

35. RA Waniewski, **X Intes**, V Venugopal, et al., "Development of Procedures for Bioimaging Rodents using Fluorescence Molecular Tomography, Magnetic Resonance Imaging, and Microscale, Computed X-Ray Tomography," Journal of the American Association for Laboratory Animal Science 49, 730-730 (2010).

34. V Venugopal, J Chen and **X Intes**, "Development of an optical imaging platform for functional imaging of small animals using wide-field excitation," Biomedical Optics Express 1, 143-156 (2010). PMID: 21258454

33. J Chen, V Venugopal, F Lesage and **X Intes**, "Time Resolved Diffuse Optical Tomography with patterned light illumination and detection," Optics Letters 35, 2121-2123 (2010). PMID: 20596166
*selected for publication in Virtual Journal for Biomedical Optics

32. S Belanger, M Abran, **X Intes**, C Casanova and F Lesage, "Real time Diffuse Optical Tomography based on Structured Illumination," Journal of Biomedical Optics 15, 016006 (2010). PMID: 20210452
*6th most cited paper among the JBO papers published in 2010

31. J Chen and **X Intes**, "Time-gated perturbation Monte Carlo for whole body functional imaging in small animals," Optics Express 17, 19566–19579 (2009). PMID: 19997176
*selected for publication in Virtual Journal for Biomedical Optics

30. B Alacam, B Yazici, **X Intes** and B Chance, "Pharmacokinetic-rate images of Indocyanine Green for breast tumors using near-infrared optical methods," Phys. Med. Biol. 53, 837-859 (2008). PMID: 18263944
*Among the top 3% of most downloaded papers in 2008 among all Institute of Physics Journals.

29. M Guven, E Giladi, B Yazici, K Kwon and **X Intes**, "Effect of discretization error and adaptive mesh generation in diffuse optical absorption imaging: Part I," Inverse Problem 23, 1115-1133 (2007).
*Highlight article of 2007 in Inverse Problems Journal.

28. M Guven, E Giladi, B Yazici, K Kwon and **X Intes**, "Effect of discretization error and adaptive mesh generation in diffuse optical absorption imaging: Part II," Inverse Problems 23, 1133-1160 (2007).

27. B Alacam, B Yazici, **X Intes** and B Chance, "Extended Kalman filtering for modeling and analysis of ICG pharmacokinetics in cancerous tumors using NIR optical methods," IEEE Biomedical Engineering 53, 1861-1871 (2006). PMID: 17019849

26. S Srinivasan, BW Pogue, H Dehghani, F Leblond and **X Intes**, "Data subset algorithm for computationally efficient reconstruction of 3-D spectral imaging in diffuse optical tomography," Optics Express 14, 5394 – 5410 (2006). PMID: 19516706
*selected for publication in Virtual Journal for Biomedical Optics.

25. **X Intes** and B Chance, "Multi-frequency Diffuse Optical Tomography," Journal of Modern Optics 52, 2139-2159 (2005).

24. S Nioka, S Wen, J Zhang, J Du, **X Intes**, Z Zhao, and B Chance, "Simulation Study of Breast Tissue Hemodynamics During Pressure Perturbation," Adv. Exp. Med. Biol. 566, 17-22 (2005).

23. **X Intes** and B Chance, "Non-PET Functional Imaging Techniques (Part I) Optical," Radiologic Clinics of North America. 43, 221-234 (2005). PMID: 15693658

22. Y Chen, **X Intes** and B Chance, "Development of high sensitivity near-infrared fluorescence imaging device for early cancer detection," Biomedical Instrumentation & Technology. 39, 75-85 (2005). PMID: 15742853

21. S Lam, F Lesage and **X Intes**, "Time Domain Fluorescent Diffuse Optical Tomography: Analytical expressions," Optics Express 13, 2263 – 2275 (2005). PMID: 19495115

20. M Guven, B Yazici, **X Intes**, and B Chance, "Diffuse optical tomography with a priori anatomical information," Phys. Med. Biol. 50, 2837-2858 (2005). PMID: 15930606

19. **X Intes**, S Djeziri, Z Ichalalene, N Mincu, Y Wang, P St-Jean F Lesage, D Hall, D Boas, M Polyzos, D Fleiszer & B Mesurolle, "Time-Domain Optical Mammography SoftScan®: Initial Results," Academic Radiology 12, 934-947 (2005). PMID: 16023382

18. **X Intes**, C Maloux, M Guven, B Yazici and B Chance, "Diffuse Optical Tomography with physiological and spatial a-priori constraints," Phys. Med. Biol. 49, N155-164 (2004). PMID: 15272687

17. G Zheng, Y Chen, **X Intes**, B Chance and J Glickson, "Contrast-Enhanced NIR Optical Imaging for subsurface cancer detection," Journal of Porphyrin and Phthalocyanines 8, 1106- 1118 (2004).

16. Y Chen, **X Intes**, DRTailor, R Regatte, H Ma, V Ntziachristos, J Leigh, R Reddy and B Chance, "Probing Rat Brain Oxygenation with Near-Infrared (NIR) Spectroscopy and Magnetic Resonance Imaging (MRI)," Oxygen Transport to Tissue XXIII, edited by D.Wilson et al., Kluwer academic, 199-204 (2003).

15. Y Chen, D Tailor, **X Intes** and B Chance, "Correlation between Near-Infrared spectroscopy (NIRS) and magnetic resonance imaging (MRI) on rat brain oxygenation modulation," Phys. Med. Biol. 48, 417-427 (2003). PMID: 12630739

14. **X Intes**, J Ripoll, T Kitai, Y Chen, S Nioka, A Yodh and B Chance, "In vivo continuous-wave optical breast imaging enhanced with Indocyanine Green," Medical Physics 30, 1039-1047 (2003). PMID: 12852527

13. Y Chen, C Mu, **X Intes**, D Blessington and B Chance, "Near-infrared phase cancellation instrument for fast and accurate localization of fluorescent heterogeneity," Rev. Sci. Instrum. 74, 3466-3473 (2003).

12. Y Chen, G Zheng, Z Zhang, D Blessington, M Zhang, H Li, Q Liu, L Zhou, **X Intes** and B Chance, " Metabolism Enhanced Tumor Localization by Fluorescence Imaging: In Vivo Animal Studies," Optics Letters 28, 2070-2072 (2003). PMID: 14587818

11. **X Intes**, V Ntziachristos, J Culver, A Yodh and B Chance, "Projection access order in Algebraic Reconstruction Techniques for Diffuse Optical Tomography," Phys. Med. Biol. 47, N1-N10 (2002). PMID: 11814231

10. **X Intes**, V Ntziachristos and B Chance, "Analytical model for dual-interfering sources Diffuse Optical Tomography," Optics Express 10, 2-14 (2002). PMID: 19424324

9. **X Intes**, Y Chen, X Li and B Chance, "Detection limit enhancement of fluorescent heterogeneities in turbid media by dual-interfering excitation," Applied Optics 41, 3999-4007 (2002). PMID: 12099611

8. Y Lin, G Lech, S Nioka, **X Intes** and B Chance, "Non-invasive, low-noise, fast imaging of blood volume and deoxygenation changes in muscles using LED continuous-wave (CW) imager," Review of Scientific Instruments 73, 3065-74 (2002).

7. T Tu, Y Chen, J Zhang, **X Intes** and B Chance, "Analysis on Performance and Optimization of Frequency-domain Noninvasive Instruments," J. Biomed. Opt. 7, 643-649 (2002). PMID: 12421133

6. Y Chen, C Mu, **X Intes** and B Chance, "Adaptive calibration for object localization in turbid media with interfering diffuse photon density waves," Applied Optics 41, 7325-7333 (2002).

5. **X Intes**, B Chance, M Holboke and A Yodh, "Interfering diffusive photon-density waves with an absorbing-fluorescent inhomogeneity," Optics Express 8, 223-231 (2001). PMID: 19417808

4. Y Chen, C Mu, **X Intes** and B Chance, "Signal-to-noise analysis for detection sensitivity of small absorbing heterogeneity in turbid media with single-source and dual-interfering-source," Optics Express 9, (2001). PMID: 19421292

3. F Pellen, **X Intes**, P Olivard, Y Guern, J Cariou and J Lotrian, "Determination of water frequency response by backscattering measurement," J. Phys. D: Appl. Phys. 33, 349-354 (2000).

2. **X Intes**, B Le Jeune, F Pellen, Y Guern, J Cariou and J Lotrian, "Localization of the virtual point source used in the diffusion approximation to modelize collimated beam source," Waves in Random Media 9, 489-499 (1999).

1. **X Intes**, B Le Jeune, F Pellen, Y Guern, J Cariou and J Lotrian, “Determination of optical properties of multiple-scattering media by using a coherent-modulated source,” J. Opt. 28, 218-224 (1997).

Books and Conference Proceeding Volumes:

1. Multimodal Biomedical Imaging IX, Fred S Azar and Xavier Intes Editors, SPIE 8937, 202 pages, 2014.
2. Multimodal Biomedical Imaging VIII, Fred S Azar and Xavier Intes Editors, SPIE 8574, 152 pages, 2013.
3. Multimodal Biomedical Imaging VII, Fred S Azar and Xavier Intes Editors, SPIE 8216, 246 pages, 2012.
4. Multimodal Biomedical Imaging VI, Fred S Azar and Xavier Intes Editors, SPIE Volume 7892, 222 pages, 2011.
5. Multimodal Biomedical Imaging V, Fred S Azar and Xavier Intes Editors, SPIE Volume 7557, 244 pages, 2010.
6. Multimodal Biomedical Imaging IV, Fred S Azar and Xavier Intes Editors, SPIE Volume 7171, 260 pages, 2009.
7. Multimodal Biomedical Imaging III, Fred S Azar and Xavier Intes Editors, SPIE Volume 6850, 224 pages, 2008.
8. Translational Multimodality Optical Imaging, Fred S Azar and Xavier Intes Editors, Artech House Publishing, 386 pages, 2008

Book Chapters:

5. Vivek Venugopal, Qianqian Fang and Xavier Intes, “Multimodal biomedical imaging,” in Biophotonics for medical applications, Woodhead books, to be published spring 2015.

4. Xavier Intes, Vivek Venugopal, Jin Chen, Fred Azar, “Multimodal diffuse imaging system,” in Biomedical Optical Imaging Techniques: Design and Applications, Springer, Chapter 7: 351-374 (2013).

3. Xavier Intes and Fred S Azar, “Advances in optical mammography,” in Advanced Optical Imaging Technologies for Clinical Medicine, Editors N Iftimia, W Brugge, D Hammer, Wiley &Sons, Chapter 11: 307-336 (2011).

2. Xavier Intes and Fred S Azar, “Introduction to Clinical Optical Imaging,” in Translational Multimodality Optical Imaging, Editors F. Azar and X. Intes, Chapter 1: 1-19 (2008).

1. Xavier Intes and Britton Chance, “Non-PET Functional Imaging Techniques (Part I) Optical,” in Radiologic Clinics of North America, Editor A. Alavi, PET Imaging II, 43, 221-234 (2005).