

25th May 2007

Patrick J. La Rivière

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Education:

- 9/90-6/94 Harvard University, A.B. *magna cum laude* in Physics.
- 9/94-6/95 Cambridge University, Lionel de Jersey-Harvard scholar at Emmanuel College. Worked on conceptual foundations of quantum mechanics in Department of History and Philosophy of Science.
- 1/96-12/00 University of Chicago, Ph.D. received December, 2000, Graduate Programs in Medical Physics.

Academic Appointments:

- 1/96-12/00 Research Assistant, Department of Radiology, The University of Chicago
- 12/00-7/02 Physicist, Department of Radiology, The University of Chicago
- 7/02-6/04 Instructor, Department of Radiology, The University of Chicago
- 7/04-Present Assistant Professor, Department of Radiology, Committee on Medical Physics, and the College, The University of Chicago

Honors:

- 1991 Detur prize for having one of the top 60 first-year grade-point averages, Harvard University
- 1994 Phi Beta Kappa, Harvard University
- 1994 Recipient of Lionel de Jersey-Harvard scholarship to Cambridge University
- 1998 Honorable mention poster award, SPIE Medical Imaging Symposium, "Mathematical equivalence of zero-padding interpolation and circular sampling theorem interpolation with implications for direct Fourier image reconstruction"
- 1999 Graduate scholarship award, IEEE Nuclear and Plasma Sciences Society
- 1999 Student travel award, IEEE Nuclear Science Symposium and Medical Imaging Conference
- 1999 Young investigator award, Future Directions in Nuclear Medicine Physics and Engineering Symposium
- 2000 First prize, Student paper competition, World Congress on Medical Physics and Biomedical Engineering
- 2000 Student travel award, IEEE Nuclear Science Symposium and Medical Imaging Conference
- 2003 Cum laude poster award, SPIE Medical Imaging Symposium, "A New Approach for CT Image Reconstruction with Asymmetric Configuration"
- 2003 Kurt Rossmann award for excellence in teaching, Graduate Programs in Medical Physics, The University of Chicago
- 2004 Schweppe Foundation Career Development Award
- 2005 Cum laude poster award, SPIE Medical Imaging Symposium, "Penalized-likelihood sinogram smoothing for dose reduction in computed tomography"
- 2005 IEEE Young Investigator Medical Imaging Scientist Award, given every two years to a young investigator within 6 years of the Ph.D. for significant contributions to medical imaging research.

Professional Associations:

1998-present Institute of Electrical and Electronics Engineers (IEEE)
2003-present American Association for the Advancement of Science
2004-present American Association of Physicists in Medicine
2005-present Society of Photo-optical Instrumentation Engineers

Professional Activity:

1997-present Reviewer, IEEE Nuclear Science Symposium and Medical Imaging Conference Abstracts
1998-present Reviewer, *IEEE Transactions on Nuclear Science*
1998-present Reviewer, *Journal of Nuclear Medicine*
1999-present Reviewer, *IEEE Transactions on Medical Imaging*
2000-present Reviewer, *Medical Physics*
2001-present Reviewer, *IEE Proceedings on Vision, Image and Signal Processing*
2002-present Reviewer, *Physics in Medicine and Biology*
2005-present Guest associate editor, *International Journal of Biomedical Imaging*
2005-present Guest associate editor, *Medical Physics*

Teaching activity:

1/1994-6/1994 Teaching Assistant, Department of Mathematics, Harvard University
9/1996-4/1997 Teaching Assistant, Department of Radiology, University of Chicago
9/1996-12/2000 Writing Tutor, College Core Program, University of Chicago
2002-present Co-teach Radiology 386: Physics of Medical Imaging I
2002-present Co-teach Radiology 387: Physics of Medical Imaging II
2004-present Co-coordinate and co-teach Biological Sciences 29207: Perspectives on Imaging
2004-present Coordinate and co-teach Biological Sciences 29326: Introduction to Medical Physics
Winter 2006 Supervised undergraduate Independent Study (HiPSS 29700)
Spring 2006 Supervised undergraduate HiPSS B.A. thesis of Andrew Huening
Title: "Photographic Truth in the Age of Digital Manipulation"

Past Funding Awards:

Principal investigator: Patrick La Rivière

Title: *Few-view tomographic reconstruction of Tc-99m-sestamibi distribution for the detection and differentiation of breast cancer*

Source: Department of Defense Breast Cancer Research Program, Pre-doctoral grant DAMD17-97-1-7118

Project period: 07/15/97–07/14/00

Total direct costs: \$76,795

Principal investigator: Patrick La Rivière

Title: *Novel reconstruction algorithms and optimized acquisition protocols for low-dose helical CT*

Source: The Louis Block Fund

Project period: 7/1/03–6/30/04

Total direct costs: \$25,000

Principal investigator: Patrick La Rivière

Title: *Development of protease-activable imaging agents for in vivo optoacoustic molecular tomography of breast cancer*

Source: Department of Defense Breast Cancer Concept Awards

Project period: 09/01/04–08/31/05

Total direct costs: \$75,000

Principal investigator: Patrick La Rivière

Title: *Development of algorithms for quantitatively accurate image reconstruction of x-ray fluorescence computed tomography*

Source: The Whitaker Foundation

Project period: 9/1/03–8/31/06

Total direct costs: \$196,833

Current Funding Awards:

Principal investigator: Patrick La Rivière

Title: *Penalized likelihood sinogram smoothing and restoration approaches for low-dose CT*

Source: Schweppe Foundation

Project period: 4/01/05–03/31/08

Total direct costs: \$100,000

Principal investigator: Patrick La Rivière

Title: *Molecular probes and techniques for optoacoustic imaging of proteases*

Source: NIH Breast Cancer SPORE

Project period: 5/01/07–4/30/08 (renewable for one additional year)

Total direct costs: \$75,000

Pending Funding Awards:

Principal investigator: Patrick La Rivière

Title: *Development of image reconstruction strategies for improved accuracy and speed in X-ray fluorescence computed tomography*

Source: NSF CAREER

Project period: 6/01/08–5/30/12

Total direct costs: \$400,000

Bibliography

Original Peer-Reviewed Journal Articles

1. La Rivière, P. J., Pan, X., and Penney, B. C., "Ideal-observer analysis of lesion detectability in planar, conventional SPECT, and dedicated SPECT scintimammography using effective multi-dimensional smoothing," *IEEE Trans. Nucl. Sci.*, **45**, pp. 1273-1279, 1998.
2. La Rivière, P. J. and Pan, X., "Spline-based inverse Radon transform in two and three dimensions," *IEEE Trans. Nucl. Sci.*, **45**, pp. 2224-2231, 1998.
3. Kao, C.-M., Pan, X., Anastasio, M., and La Rivière, P. J., "A Fourier-based optimal recovery approach for anti-aliasing interpolation," *Optical Engineering*, **38**, pp. 2041-2044, 1999.
4. La Rivière, P. J. and Pan, X., "Few-view tomography using roughness-penalized nonparametric regression and periodic spline interpolation," *IEEE Trans. Nucl. Sci.*, **46**, pp. 1121-1128, 1999.
5. La Rivière, P. J. and Pan, X., "Noise properties of periodic interpolation methods with implications for few-view tomography," *IEEE Trans. Nucl. Sci.*, **46**, pp. 639-645, 1999.
6. La Rivière, P. J. and Pan, X., "Nonparametric regression sinogram smoothing using a roughness-penalized Poisson likelihood objective function," *IEEE Trans. Med. Imag.*, **19**, pp. 773-786, 2000.
7. La Rivière, P. J., Pan, X., Gilland, D., Kao, C.-M., Chang, W., and Jaszczak, R., "Transmission image reconstruction and redundant information in SPECT with asymmetric fan-beam collimation," *IEEE Trans. Nucl. Sci.*, **48**, pp. 1357-1363, 2001.
8. La Rivière, P. J. and Pan, X., "Fourier-based approach for interpolation in single-slice helical CT," *Med. Phys.*, **28**, pp. 381-392, 2001.
9. La Rivière, P. J. and Pan, X., "Longitudinal aliasing in multi-slice helical computed tomography: sampling and cone-beam effects," *IEEE Trans. Med. Imag.*, **21**, pp. 1366-1373, 2002.
10. La Rivière, P. J. and Pan, X., "Anti-aliasing weighting functions for single-slice helical CT," *IEEE Trans. Med. Imag.*, **21**, pp. 978-990, 2002.
11. La Rivière, P. J. and Pan, X., "Pitch dependence of longitudinal sampling and aliasing effects in multi-slice helical computed tomography (CT)," *Phys. Med. Biol.*, **47**, pp. 2797-2810, 2002.
12. La Rivière, P. J. and Pan, X., "Favorable noise uniformity properties of Fourier-based interpolation and reconstruction approaches in single-slice helical CT," *Med. Phys.*, **29**, pp. 943-951, 2002.
13. La Rivière, P. J. and Pan, X., "Interlaced interpolation weighting functions for multi-slice helical CT," *Optical Engineering*, **42**, pp. 3461-3470, 2003.
14. Armato, S. G., Altman, M. B., and La Rivière, P. J., "Automated detection of lung nodules in CT scans: Effect of image reconstruction algorithm," *Med. Phys.*, **30**, pp. 461-472, 2003.
15. La Rivière, P. J. and Pan, X., "Sampling and aliasing consequences of quarter-detector offset use in helical CT," *IEEE Trans. Med. Imag.*, **23**, pp. 738-749, 2004.
16. La Rivière, P. J., "Approximate analytic reconstruction in X-ray fluorescence computed tomography," *Phys. Med. Biol.*, **49**, pp. 2391-2406, 2004.
17. Dachman, A. H., Schumm, P., Heckel, B., Yoshida, H., and La Rivière, P. J., "The effect of reconstruction algorithm on conspicuity of polyps in CT colonography," *Am. J. Roentgenol.*, **183**, pp. 1349-1352, 2004.
18. La Rivière, P. J. and Billmire, D. M., "Reduction of noise-induced streak artifacts in x-ray computed tomography through spline-based penalized-likelihood sinogram smoothing," *IEEE Trans. Med. Imag.*, **24**, pp. 105-111, 2005.

19. La Rivière, P. J., “Penalized-likelihood sinogram smoothing for low-dose CT,” *Med. Phys.*, **32**, pp. 1676–1683, 2005.
20. La Rivière, P. J., Zhang, J., and Anastasio, M., “Image reconstruction in optoacoustic tomography for dispersive acoustic media,” *Optics Letters*, **31**, pp. 781–783, 2006.
21. La Rivière, P. J., and Billmire, D. M., and Vargas, P. A., and Rivers, M. and Sutton, S., “Penalized-likelihood image reconstruction for X-ray fluorescence computed tomography,” *Optical Engineering*, **45**, 077005 (10 pages), 2006.
22. La Rivière, P. J., and Bian, J., and Vargas, P. A., “Penalized-likelihood sinogram restoration for computed tomography,” *IEEE Trans. Med. Imag.*, **25**, pp. 1022–1036, 2006.
23. La Rivière, P. J., and Bian, J., and Vargas, P. A., “Comparison of quadratic- and median-based roughness penalties for penalized-likelihood sinogram restoration in computed tomography,” accepted for publication in *International Journal of Biomedical Imaging*, 2006.
24. La Rivière, P. J. and Vargas, P. A., “Monotonic penalized-likelihood image reconstruction for X-ray fluorescence computed tomography,” *IEEE Trans. Med. Imag.*, **25**, pp. 1117–1129, 2006.

Original Peer-Reviewed Journal Articles under review

1. La Rivière, P. J. and Vargas, P. A., “Correction for resolution non-uniformities caused by anode angulation in computed tomography,” submitted to *IEEE Trans. Med. Imag.*, 2007.
2. La Rivière, P. J., Vargas, P. A., Newville, M., and Sutton, S., “Reduced-scan schemes for X-ray fluorescence computed tomography,” submitted to *IEEE Trans. Nucl. Sci.*, 2007.
3. Anastasio, M.A., Zhang, J., Modgil, D., Pan, X., and La Riviere, P., “A Fourier shell identity for photoacoustic tomography,” submitted to *Inverse Problems*, 2007.

Original Peer-Reviewed Journal Articles in preparation

1. La Rivière, P. J., Vargas, P. A., Xia, D., Pan, X., Newville, M., and Sutton, S., “Region of interest imaging in X-ray fluorescence computed tomography.”
2. La Rivière, P. J., Vargas, P. A., Newville, M., and Sutton, S., “Optimal sampling and interpolation schemes for 3D X-ray fluorescence computed tomography.”

Original Peer-Reviewed Proceedings Articles

1. La Rivière, P. J. and Pan, X., “Longitudinal sampling and aliasing properties in multi-slice helical computed tomography,” *Proceedings of the Sixth International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, pp. 203–207, 2001.
2. La Rivière, P. J., “Accurate analytic reconstruction in x-ray fluorescence computed tomography” *Proc. 2002 IEEE Intl. Symp. Biomedical Imaging*, pp. 637–640, 2002.
3. La Rivière, P. J., “Three dimensional reconstruction in x-ray fluorescence computed tomography,” *Proceedings of the Seventh International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, pp. FR-AM1-3, 2003.

Book Chapters

1. Pagonis, C., Redhead, M. L. G., and La Rivière, P. J., “EPR, Relativity, and the GHZ Experiment” in Clifton, R. (ed), *Perspectives on Quantum Reality*. Kluwer, Dordrecht, pp. 43–55, 1996.
2. Redhead, M. L. G. and La Rivière, P. J., “The Relativistic EPR Argument,” in Cohen, R. S. *et al.* (eds), *Potentiality, Entanglement and Passion-at-a-Distance*. Kluwer, Dordrecht, pp. 207–215, 1997.
3. Chen, C.-T. , Cooper, M. , Kao, C.-M. , La Rivière, P. J., Pan, X., Wen., H.-H., Hsu, C.-H., Hsiao, Z., Lin, K. M.-C. and Lu, C.-C., “Functional and Molecular Imaging Using Positron Emission Tomography,” in Hwang, N. H. C. and Woo S. L.-Y. (eds), *Frontiers in Biomedical Engineering*, Kluwer Academic/Plenum Publishers, New York, pp. 295–314, 2003.
4. Kao, C.-M., La Rivière, P. J., and Pan, X., “Basics of Imaging Theory and Statistics,” in Wernick, M. and Aarsvold, J. (eds.), *Emission Tomography: The Fundamentals of PET and SPECT*, Elsevier Academic Press, San Diego, pp. 103–126, 2004.
5. La Rivière, P. J., “Multislice helical computed tomography: techniques and applications,” in C. Leondes (ed.), *Medical Imaging Systems*, World Scientific Publishing Company, Singapore, pp. 1-36, 2005.
6. La Rivière, P. J., “Sinogram preprocessing for artifact reduction in computed tomography,” in S. Armato and M. Brown (eds.), *RSNA Categorical Course in Diagnostic Radiology Physics: Multidimensional Image Processing, Analysis, and Display*, Radiological Society of North America, pp. 51–62, 2005.

Invited Lectures

1. La Rivière, P. J., “X-ray fluorescence computed tomography: biomedical applications and reconstruction challenges,” Biomedical Engineering Seminar, Marquette University, 2003.
2. La Rivière, P. J., “Development of molecular probes and acoustic attenuation correction schemes for optoacoustic tomography”, University of Wisconsin, Milwaukee, 2006.
3. La Rivière, P. J., “Sinogram preprocessing for artifact reduction in computed tomography,” as part of the short course on *Multidimensional Image Processing, Analysis, and Display*, given at the Radiological Society of North America, in 2005, 2006, and 2007.

Non-Peer-Reviewed Conference Proceedings Articles

1. La Rivière, P. J. and Pan, X., “Direct spline-based inversion of the three-dimensional Radon transform with application to cardiac phantom data,” *IEEE Nucl. Sci. Symp. Conf. Record*, **2**, pp. 1674-1678, 1997.
2. La Rivière, P. J., Pan, X., Penney, B. C., and Chen, C.-T., “Improved detectability of malignant lesions in SPECT scintimammography using effective multi-dimensional smoothing,” *IEEE Nucl. Sci. Symp. Conf. Record*, **2**, pp. 1581-1585, 1997.
3. Pan, X., La Rivière, P. J., Ye, J., Mukherjee, J. and Chen, C.-T., “Efficient sinogram smoothing for dynamic neuroreceptor PET imaging,” *Proc. SPIE*, **3033**, pp. 140-146, 1997.
4. Kao, C.-M., Pan, X., Anastasio, M., and La Rivière, P. J., “An interpolation method using signal recovery and discrete Fourier transform,” *IEEE Nucl. Sci. Symp. Conf. Record*, **2**, pp. 1387-1391, 1998.
5. La Rivière, P. J. and Pan, X., “Few-view tomography using interpolating and smoothing splines with implications for cardiac SPECT,” *IEEE Nucl. Sci. Symp. Conf. Record*, **3**, pp. 1615-1619, 1998.
6. La Rivière, P. J. and Pan, X., “Noise properties of periodic interpolation methods with implications for few-view tomography,” *IEEE Nucl. Sci. Symp. Conf. Record*, **3**, pp. 1610-1614, 1998.

7. La Rivière, P. J. and Pan, X., "Mathematical equivalence of zero-padding interpolation and circular sampling theorem interpolation with implications for direct Fourier image reconstruction," *Proc. SPIE*, **3338**, pp. 1117-1126, 1998.
8. La Rivière, P. J., Pan, X., and Kao, C.-M., "Medical imaging applications of effectively multi-dimensional interpolation," *IEEE Nucl. Sci. Symp. Conf. Record*, **2**, pp. 1023-1027, 1999.
9. Pan, X. and La Rivière, P. J., "FFT-based approach to longitudinal interpolation in single- and multi-slice helical CT," *IEEE Nucl. Sci. Symp. Conf. Record*, **3**, pp. 1588-1592, 1999.
10. La Rivière, P. J. and Pan, X., "Resolution properties of non-parametric regression sinogram smoothing using an explicit Poisson model," *IEEE Nucl. Sci. Symp. Conf. Record*, **3**, pp. 1657-1661, 1999.
11. La Riviere, P. J. and Pan, X., "Comparison of angular interpolation approaches in few-view tomography using statistical hypothesis testing," *Proc. SPIE*, **3661**, pp. 398-407, 1999.
12. La Rivière, P. J., Pan, X., Gilland, D., Kao, C.-M., Chang, W., and Jaszczak, R., "Transmission image reconstruction and redundant information in SPECT with asymmetric fan-beam collimation," *IEEE Nucl. Sci. Symp. Conf. Record*, **2**, pp. 15_194-15_198, 2000.
13. La Rivière, P. J. and Pan, X., "Longitudinal sampling and aliasing in multi-slice helical computed tomography," *IEEE Nucl. Sci. Symp. Conf. Record*, **2**, pp. 15_79-15_83, 2000.
14. La Rivière, P. J. and Pan, X., "Favorable noise uniformity properties of Fourier-based approaches to interpolation in helical CT with implications for 3D visualization," *Proceedings of the 22nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, **2**, pp. 1043-1046, 2000.
15. La Rivière, P. J. and Pan, X., "Fourier-based approach to interpolation in helical CT exploiting redundant fan-beam information," *Proc. SPIE*, **3977**, pp. 280-291, 2000.
16. Pan, X., La Rivière, P. J., Kao, C.-M., and Pan, T.-S., "Evaluation of noise properties of reconstruction algorithms in fan-beam computed tomography," *Proc. SPIE*, **3979**, pp. 1636-1641, 2000.
17. Feng, J., Kao, C.-M., La Rivière, P. J., and Pan, X., "An angular frequency dependent filter for PET reconstruction," *IEEE Nucl. Sci. Symp. Conf. Record*, **3**, pp. 1742-1745, 2001.
18. La Rivière, P. J. and Pan, X., "B-spline based weighting functions for helical CT," *IEEE Nucl. Sci. Symp. Conf. Record*, **3**, pp. 1494-1498, 2001.
19. La Rivière, P. J. and Pan, X., "Anti-aliasing weighting functions for helical CT," *Proc. SPIE*, **4320**, pp. 732-743, 2001.
20. La Rivière, P. J. and Pan, X., "Anti-aliasing weighting functions for multi-slice helical CT," *Proc. SPIE*, **4682**, pp. 380-391, 2002.
21. La Rivière, P. J. and Pan, X., "Sampling and aliasing consequences of quarter-detector offset use in helical CT," *IEEE Nucl. Sci. Symp. Conf. Record*, **3**, pp. 1711-1715, 2002.
22. Sidky, E. Y., Kao, C.-M., La Rivière, P. J. and Pan, X., "Noise properties of the inverse pi-scheme exponential Radon transform," *Proc. SPIE*, **4684**, pp. 790-796, 2002.
23. Yu, L., Pan, X., Pelizzari, C., La Rivière, P. J., and Pan, T., "A New Approach for CT Image Reconstruction with Asymmetric Configuration," *Proc. SPIE*, **5032**, pp.1911-1917, 2003.
24. La Rivière, P. J., "Reduction of noise-induced streak artifacts in x-ray computed tomography through penalized-likelihood sinogram smoothing," *IEEE Nucl. Sci. Symp. Conf. Record*, **5**, pp. 3239 - 3243, 2003.
25. La Rivière, P. J., "Fourier crosstalk analysis of multi-slice and conebeam helical CT," *Proc. SPIE*, **5368**, pp. 19-28, 2004.

26. La Rivière, P. J. and Billmire, D. M., “Penalized-likelihood image reconstruction for x-ray fluorescence computed tomography with unknown fluorescence attenuation maps,” *Proc. SPIE*, **5535**, pp. 243–252, 2004.
27. La Rivière, P. J., “Penalized-likelihood sinogram restoration for CT artifact correction,” to be published in *IEEE Nucl. Sci. Symp. Conf. Record*, 2004.
28. La Rivière, P. J and Vargas, P., “Penalized-likelihood sinogram smoothing for dose reduction in computed tomography,” *Proc. SPIE*, **5745**, pp. 992–1001, 2005.
29. La Rivière, P. J and Vargas, P., “Monotonic penalized-likelihood image reconstruction for X-ray fluorescence computed tomography,” *IEEE Nucl. Sci. Symp. Conf. Record*, **4**, 1596723 (5 pages), 2005.
30. La Rivière, P. J., Zhang, J., and Anastasio, M., “Image reconstruction in optoacoustic tomography accounting for frequency-dependent attenuation,” *IEEE Nucl. Sci. Symp. Conf. Record*, **4**, 1596689 (5 pages), 2005.
31. La Rivière, P. J., Zhang, J., and Anastasio, M., “Ultrasonic attenuation correction in optoacoustic tomography,” *Proc. SPIE*, **6086**, pp. 60861ff (8 pages), 2006.
32. La Rivière, P. J and Vargas, P., “Evaluation of noise and resolution properties of penalized-likelihood CT sinogram smoothing and restoration algorithms,” *Proc. SPIE*, **6142**, pp. 61420Xff (8 pages), 2006.
33. Forthmann, P., Kohler, T., Defrise, M., and La Riviere, P., “Comparison of three sinogram restoration methods,” *Proc. SPIE*, **6142**, pp. 61420Yff (12 pages), 2006.
34. La Rivière, P. J and Vargas, P., “Alternating update penalized-likelihood image reconstruction for x-ray fluorescence computed tomography,” *Proc. SPIE*, **6318**, pp. 63180Zff (10 pages), 2006.
35. La Rivière, P. J and Vargas, P., “Correction for resolution non-uniformities caused by anode angulation in computed tomography,” to appear in *IEEE Nucl. Sci. Symp. Conf. Record*, 2006.
36. La Rivière, P. J and Vargas, P., “Monotonic iterative reconstruction algorithms for targeted reconstruction in emission and transmission computed tomography,” to appear in *IEEE Nucl. Sci. Symp. Conf. Record*, 2006.
37. La Rivière, P. J, and Green, A., and Norris, J., “Development of a protease-sensitive molecular imaging agent for optoacoustic tomography,” to appear in *Proc. SPIE*, 2007.

Conference Presentations and Abstract

1. La Rivière, P. J. and Pan, X., “Direct spline-based inversion of the three-dimensional Radon transform with application to cardiac SPECT,” *83rd Scientific Assembly and Annual Meeting of Radiological Society of North America*, 1997.
2. La Rivière, P. J., Pan, X., Penney, B. C., and Chen, C.-T., “Improved detectability of malignant lesions in dedicated SPECT scintimammography using effective multi-dimensional smoothing,” *83rd Scientific Assembly and Annual Meeting of Radiological Society of North America*, 1997.
3. La Rivière, P. J., Pan, X., Penney, B. C., Chen, C.-T., and Reba, R., “Few-angle cardiac SPECT with spline processing: initial results and radial-extent limitations,” *83rd Scientific Assembly and Annual Meeting of Radiological Society of North America*, 1997.
4. La Rivière, P. J. and Pan, X., “Improved detectability of malignant lesions in SPECT scintimammography using effective multi-dimensional smoothing,” *IEEE Medical Imaging Conference*, 1997.
5. La Rivière, P. J. and Pan, X., “Direct spline-based inversion of the three-dimensional Radon transform with application to cardiac phantom data,” *IEEE Medical Imaging Conference*, 1997.
6. Pan, X., La Rivière, P. J., Ye, J., Mukherjee, J., and Chen, C.-T., “Efficient sinogram smoothing for dynamic neuroreceptor PET imaging,” *SPIE Medical Imaging Conference*, 1997.

7. La Rivière, P. J. and Pan, X., "Mathematical equivalence of zero-padding interpolation and circular sampling theorem interpolation with implications for direct Fourier image reconstruction," *SPIE Medical Imaging Conference*, 1998.
8. La Rivière, P. J. and Pan, X., "Noise properties of periodic interpolation methods with implications for few-view tomography," *IEEE Medical Imaging Conference*, 1998.
9. Kao, C.-M., Pan, X., Anastasio, M., and La Rivière, P. J., "An interpolation method using signal recovery and discrete Fourier transform," *IEEE Medical Imaging Conference*, 1998.
10. La Rivière, P. J., Pan, X., and Penney B. C., "Few-view tomography using interpolating and smoothing splines with implications for cardiac SPECT," *IEEE Medical Imaging Conference*, 1998.
11. La Rivière, P. J. and Pan, X., "Comparison of angular interpolation approaches for few-view tomography using statistical hypothesis testing," *SPIE Medical Imaging Conference*, 1999.
12. La Rivière, P. J. and Pan, X., "Evaluation of angular interpolation accuracy for few-view tomography," *Symposium on Future Directions in Nuclear Medicine Physics and Engineering*, 1999.
13. La Rivière, P. J. and Pan, X., "Resolution properties of non-parametric regression sinogram smoothing using an explicit Poisson model," *IEEE Medical Imaging Conference*, 1999.
14. La Rivière, P. J., Pan, X., and Kao, C.-M., "Medical imaging applications of a novel multi-dimensional interpolation approach," *IEEE Medical Imaging Conference*, 1999.
15. Pan, X. and La Rivière, P. J., "FFT-based approach to longitudinal interpolation in single- and multi-slice helical CT," *IEEE Medical Imaging Conference*, 1999.
16. La Rivière, P. J. and Pan, X., "Fourier-based approach to interpolation in helical CT exploiting redundant fan-beam information," *SPIE Medical Imaging Conference*, 2000.
17. Pan, X., La Rivière, P. J., Kao, C.-M., and Pan, T.-S., "Performance evaluation and extension of a new family of hybrid algorithms for image reconstruction in conventional and helical CT," *SPIE Medical Imaging Conference*, 2000.
18. La Rivière, P. J. and Pan, X., "Favorable noise properties of Fourier-based approaches to interpolation in helical CT with implications for 3D visualization," *World Congress on Medical Physics and Biomedical Engineering*, 2000.
19. Pan, X. and La Rivière, P. J., "Analysis and reduction of image noise in short-scan fan-beam computed tomography," *World Congress on Medical Physics and Biomedical Engineering*, 2000.
20. La Rivière, P. J. and Pan, X., "Longitudinal sampling and aliasing in multi-slice helical computed tomography," *IEEE Medical Imaging Conference*, 2000.
21. La Rivière, P. J., Pan, X., Gilland, D., Kao, C.-M., Chang, W., and Jaszczak, R., "Transmission image reconstruction and redundant information in SPECT with asymmetric fan-beam collimation," *IEEE Medical Imaging Conference*, 2000.
22. La Rivière, P. J. and Pan, X., "Anti-aliasing weighting functions for helical CT," *SPIE Medical Imaging Conference*, 2001.
23. La Rivière, P. J. and Pan, X., "Longitudinal sampling and aliasing properties in multi-slice helical computed tomography" *Sixth International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2001.
24. La Rivière, P. J. and Pan, X., "B-spline based weighting functions for single-slice helical CT," *IEEE Medical Imaging Conference*, 2001.
25. La Rivière, P. J. and Pan, X., "Sampling and aliasing consequences of quarter-detector offset use in helical CT," *IEEE Medical Imaging Conference*, 2002.

26. La Rivière, P. J. and Pan, X., "Noise properties of hybrid fanbeam reconstruction algorithms: analytic derivations and consequences," *AAPM Annual Meeting*, 2002.
27. La Rivière, P. J., "Accurate analytic reconstruction in x-ray fluorescence computed tomography," *International Symposium on Biomedical Imaging*, 2002.
28. La Rivière, P. J. and Pan, X., "Anti-aliasing weighting functions for multi-slice helical CT," *SPIE Medical Imaging Conference*, 2002.
29. Yu, L., Pan, X., Pelizzari, C., La Rivière, P. J., and Pan, T., "A New Approach for CT Image Reconstruction with Asymmetric Configuration," *SPIE Medical Imaging Conference*, 2003.
30. La Rivière, P. J., "Three dimensional reconstruction in x-ray fluorescence computed tomography," *Seventh International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2003.
31. La Rivière, P. J., "Reduction of noise-induced streak artifacts in x-ray computed tomography through penalized-likelihood sinogram smoothing," *IEEE Medical Imaging Conference*, 2003.
32. La Rivière, P. J., "Fourier crosstalk analysis of multi-slice and conebeam helical CT," *SPIE Medical Imaging Conference*, 2004.
33. La Rivière, P. J. and Billmire, D. M., "Penalized-likelihood image reconstruction for x-ray fluorescence computed tomography with unknown fluorescence attenuation maps," *Developments in X-Ray Tomography IV*, 2004.
34. La Rivière, P. J., "Penalized-likelihood sinogram restoration for CT artifact correction," *IEEE Medical Imaging Conference*, 2004.
35. La Rivière, P. J. and Vargas, P., "Penalized-likelihood sinogram smoothing for dose reduction in computed tomography," *SPIE Medical Imaging Conference*, 2005.
36. La Rivière, P. J. and Vargas, P., "Monotonic Penalized-Likelihood Image Reconstruction for X-ray Fluorescence Computed Tomography," *IEEE Medical Imaging Conference*, 2005.
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