



THIERRY BLU

IEEE Fellow

Rm 514, Barry Lam Hall, Department of Electrical Engineering
National Taiwan University, No.1, Sec. 4, Roosevelt Rd.
Taipei 106319, Taiwan, R.O.C.

Tel: (886) 2 3366 3568

email: thierry.blu@m4x.org

Web: www.ee.cuhk.edu.hk/~tblu/

RESEARCH INTERESTS

Signal processing	Real, complex wavelets and multiresolution analysis; Filter banks; Nonseparable multidimensional cases
Approximation theory	Uniform, nonuniform splines; Interpolation, approximation error; Variational approximation problems; Sparse approximation, Finite Rate of Innovation
Statistics	Detection and estimation; Signal/Image denoising, Stein's Unbiased Risk Estimate; Generalized stochastic processes, fractional Brownian motions (fBm)
Modelling	Auditory system, psychoacoustics
Physics	Wave propagation, optics, holography
Applications	Biomedical imaging (microscopy, cryo-EM, MRI, fMRI, PET, OCT, Terahertz, etc.); Electroencephalography (EEG)

EDUCATION

1986	“Diplôme d'ingénieur ¹ ” from <i>École Polytechnique</i> ² –Palaiseau, France: strong emphasis on mathematical analysis (integration, distribution theory and statistics) and theoretical physics (quantum mechanics, wave propagation, statistical physics)
1988	“Diplôme d'ingénieur” from <i>École Nationale Supérieure des Télécommunications (ENST)</i> –Paris, France: emphasis on electrical engineering and communications
1996	PhD in electrical engineering from ENST (with highest honours): <i>Fractional Octave Band Iterated Filter Banks—Application to Audio Sound Processing</i> advised by Prof. Pierre DUHAMEL

POSITIONS

2024–present	<i>National Taiwan University</i> : Yushan Professor in the department of <i>Electrical Engineering</i> (on leave from CUHK)
2008–2024	<i>The Chinese University of Hong Kong</i> : Professor (tenured 2011) in the department of <i>Electronic Engineering</i> , head of the Image and Video Processing Lab
1998–2007	<i>Swiss Federal Institute of Technology in Lausanne (EPFL)</i> : Project leader, then “Scientific Adjunct” in the <i>Biomedical imaging Laboratory</i> headed by Prof. Michael UNSER; responsible for the mathematical aspects of Image Processing
1988–2014	“Ingénieur des Télécoms/Mines” then “Ingénieur en Chef des Télécoms/Mines ³ ” (since 1997) in the French Telecommunication administration, on sabbatical leave from 1998
1994–1998	<i>France Telecom Research & Development</i> –Paris: researcher in audio and image processing within the <i>Groupware and Videotelephony</i> department
1988–1993	<i>France Telecom Research & Development</i> –Paris: researcher in wave propagation (1988–1990) then in signal processing (wavelets, filterbanks) within the <i>Centre de Recherche en Physique de l'Environnement Terrestre et Planétaire</i> ⁴

¹Equivalent to a Master of Science Degree

²The most prestigious higher education institution in France (see <http://en.wikipedia.org/wiki/Polytechnique>)

³Chief Telecommunication/Mining Engineer

⁴Research Center in Physics of the Environment of the Earth and the Planets

PROFESSIONAL ACTIVITIES

Editor in Chief	<i>Sampling Theory in Signal and Image Processing</i> (2009–2020)
Associate Editor	<i>IEEE Transactions on Image Processing</i> (2002–2006) <i>IEEE Transactions on Signal Processing</i> (2006–2010) <i>Elsevier Signal Processing</i> (2008–2011) <i>EURASIP Journal on Image and Video Processing</i> (2009–) <i>SIAM Journal on Imaging Sciences</i> (2019–)
Guest Editor	<i>Elsevier Signal Processing</i> Special Issue on Advances in Multirate Filter Bank Structures and Multiscale Representations
Chair	Program Committee for <i>WavE 2006</i> (Lausanne) General Co-Chair of <i>SAMPTA 2011</i> (Singapore) Asia liaison for <i>ISBI 2012</i> (Barcelona), <i>SSP 2012</i> (Ann Arbor, MI) International liaison <i>EUSIPCO 2015</i> (Nice, France)
Member	IEEE Signal Processing Society <i>Signal Processing Theory and Methods</i> Technical Committee (2008–2013), <i>Biomedical Imaging and Signal Processing</i> Technical Committee (2017–2022) Program Committee for various conferences (e.g., <i>EUSIPCO</i> , <i>SPIE Wavelet</i> , <i>BioMed</i> , <i>APSIPA</i> , <i>SSP</i> , etc. <i>ICIP 2006</i> special session organizer.
Session Chair	<i>SPIE Wavelet VII and X</i> , <i>Pacific Rim Conference on Mathematics</i> 2001 (Taipeh), <i>International Conference on Superresolution Imaging</i> 2005 (Hong Kong), <i>ICIP</i> 2010, 2017, 2019 <i>ICASSP</i> 2019
Reviewer	Various <i>IEEE Transactions</i> , <i>IEEE conferences</i> , <i>SIAM</i> publications, <i>Nature Methods</i> , <i>JOSA</i> , books, conferences and research grant proposals
Jury	Chairman/Member of PhD and award committees

INVITATIONS (since 2008)

4–18/07/2008	<i>École Polytechnique Fédérale de Lausanne</i> (Prof. Martin Vetterli)
19–26/07/2008	<i>Technical University Munich</i> (Prof. Brigitte Forster)
24–25/10/2008	<i>National Taiwan University</i> (Prof. I-Liang Chern)
18–21/06/2009	<i>Nanyang Technological University</i> (Prof. Pina Marziliano)
29/06/2009	<i>INRIA Sophia Antipolis</i> (Prof. Josiane Zerubia)
10–14/08/2010	<i>NICTA Canberra</i> (Dr. Karim Seghouane)
9–11/05/2011	<i>Temasek Laboratories, Singapore</i> (Dr. Chong Meng See)
23/06–8/07/2011	<i>École Polytechnique Fédérale de Lausanne</i> (Prof. Martin Vetterli)
2–5/06/2012	<i>Nanyang Technological University</i> (Prof. Tee Hiang Cheng)
18–22/07/2012	<i>Imperial College, London</i> (Prof. Pier-Luigi Dragotti)
5–19/07/2013	<i>École Polytechnique Fédérale de Lausanne</i> (Prof. Martin Vetterli)
7–11/07/2014	<i>University of Bristol</i> (Prof. Alin Achim)
1/02–30/06/2015	<i>University of Vienna</i> (Prof. Torsten Möller)
29/03–2/04/2015	<i>École Polytechnique Fédérale de Lausanne</i> (Prof. Dimitri Van De Ville)
21–22/05/2015	<i>Imperial College, London</i> (Prof. Pier-Luigi Dragotti)
1/07–31/12/2015	<i>Harvard University</i> (Prof. Yue Lu)
17/09/2015	<i>New York University</i> (Prof. Ivan Selesnick)
14–17/10/2015	<i>University of Illinois at Urbana-Champaign</i> (Prof. Pierre Moulin)
18–21/10/2015	<i>University of Iowa</i> (Prof. Mathews Jacob)
26/06–10/07/2016	<i>École Polytechnique Fédérale de Lausanne</i> (Prof. Martin Vetterli)
27–28/04/2017	<i>Melbourne University</i> (Prof. Karim Seghouane)
22–24/04/2018	<i>École Polytechnique Fédérale de Lausanne</i> (Prof. Michael Unser)
9–11/07/2018	<i>Yokohama University</i> (Prof. Koichi Ichige)
27/06–16/07/2019	<i>Imperial College, London</i> (Prof. Kin Leung)
26/06–14/07/2023	<i>Imperial College, London</i> (Prof. Ayush Bhandari)
23/08–25/08/2023	<i>École Polytechnique Fédérale de Lausanne</i> (Prof. Martin Vetterli)

AWARDS

IEEE Signal Processing Society’s 2003 *Best Paper Award* for the article entitled *Wavelets, fractals, and radial basis functions* (with M. Unser) [84, journals]

IEEE Signal Processing Society’s 2006 *Best Paper Award* for the article entitled *Sampling signals with finite rate of innovation* (with M. Vetterli and P. Marziliano) [81, journals]

IEEE Signal Processing Society’s 2009 *Young Author Best Paper Award* for the article entitled *A new SURE approach to image denoising: Interscale orthonormal wavelet thresholding* (First author: F. Luisier) [58, journals]

ICIP’05 *Best Student Paper Award* for the article entitled *Beyond interpolation: Optimal reconstruction by quasi-interpolation* (First author: L. Condat) [87, conferences]

ICIP’16 *Best Paper Runner-Up Award* for the article entitled *Deconvolution of Poissonian Images with the PURE-LET Approach* (First author: J. Li) [27, conferences]

ISBI’17 *Best Student Paper Award (2nd place)* for the article entitled *PURE-LET Deconvolution of 3D Fluorescence Microscopy Images* (First author: J. Li) [25, conferences]

Outstanding Fellow of CUHK Faculty of Engineering (2019–2024)

TEACHING

- 1997–1999 Courses on wavelets for undergraduates at ENIC (New School for Communication Engineers in Lille, France)
- 2003–2007 *Signals and Systems* to Microengineering students and Life-Science students at EPFL
- 2008– ELEG4430 (*Digital Image Processing*), ELEG3310 (*Basic Electromagnetic Theory*), ENGG3910 (*Methodology of Research*), ENGG2011 (*Advanced Engineering Mathematics—Syllabus A*), ENGG2420 (*Complex Analysis and Differential Equations*), ENGG2720 (*Complex Variables for Engineers*) and BMEG3320 (*Biomedical Imaging*) to engineering undergraduate students at CUHK; MSc courses ELEG5742 (*Image Processing and Video Technology*) and BMEG5830 (*Medical Imaging*); Postgraduate course ELEG5060 (*Functional Analysis and Approximation Theory*)

GRADUATE STUDENTS

- 2022– Qi Dai, “Time-Frequency FRI” (PhD–CUHK)
- 2021– Zihan Zhang, “Blind Source Separation” (PhD–CUHK)
- 2019– Zikai Sun, “Scale and rotation covariant image representations” (PhD–CUHK)
- 2018–2023 Gang Luo, “Optical Diffraction Tomography” (PhD–CUHK) — Co-supervision with R. Zhou
- 2017–2021 Ruiming Guo, “Images from 1D signals” (PhD–CUHK)
- 2016–2020 Xiao Li, “Nonsmooth Nonconvex Optimization” (PhD–CUHK)
- 2016–2020 Xinxin Zhang, “Local All-Pass Parametric Image Registration” (PhD–CUHK)
- 2014–2018 Charlie, Jizhou Li, “Super-Resolution in Fluorescence Microscopy” (PhD–CUHK)
- 2013–2020 Harold, Tianle Zhao, “Steering Patterns” (PhD–CUHK)
- 2013–2018 Hanjie Pan, “Seeing Beyond Pixels: Theory, Algorithms and Applications of Continuous Sparse Recovery” (PhD–EPFL) — Co-supervision with M. Vetterli
- 2013–2017 Ruby, Lan Ma, “Towards EEG Microstate Analysis” (PhD–CUHK) — Co-supervision with W.S.Y. Wang
- 2011–2015 Zafer Doğan, “Wave Harmonic Sensing” (PhD–EPFL) — Co-supervision with D. Van De Ville
- 2011–2015 Manson, Cheuk Man Fong, “Brain-Computer Interface” (PhD–CUHK) — Co-supervision with W.S.Y. Wang
- 2011–2013 Hiu Fung Lee, “Edge Basis Functions” (MPhil–CUHK)

2010–2013	Hanjie Pan, “Algorithms for Sparse Image Restoration” (MPhil–CUHK)
2009–2013	Feng Xue, “Unbiased Risk Estimate Algorithms for Image Deconvolution” (PhD–CUHK)
2008–2011	Djano Kandaswamy, “Analytic Sensing of Electro-EncephaloGrams” (PhD–EPFL) — Co-supervision with D. Van De Ville
2008–2011	Matthew, Ka Lim Ma, “Denoising of Computer Tomography Images” (MPhil–CUHK)
2005–2009	Florian Luisier, “The SURE-LET Approach to Image Denoising” (PhD–EPFL) — Co-supervision with M. Unser

ADMINISTRATION

Feb. 2008–	Member of various committees of the EE Dept: <i>Computer Committee</i> (Chairman), <i>Research Committee</i> (Chairman), <i>Department Academic Personnel Committee</i> , <i>Non-Teaching Staff Review Panel</i> , <i>Curriculum Committee</i> , <i>Teaching & Learning Committee</i> (Vice-chairman), <i>Examination matters</i> , <i>Teaching Lab</i> , <i>Scholarship</i> , <i>Student Activities</i> , <i>Library Coordinator</i> ; and of the Faculty of Engineering: <i>Engineering Panel</i> , <i>Engineering Mathematics Subject Panel</i> , <i>Outstanding Thesis Award Selection Panel</i> .
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FUNDING

Feb. 2008–Feb. 2010	“Poisson noise reduction using an unbiased risk estimate: Application to biological image denoising”, PI, Direct Grant for Research ID# 2050420, HK\$ 150,000
Apr. 2008–Mar. 2011	“Analytic sensing: A new technique for EEG source imaging”, Co-I, SNF (Switzerland) doctoral grant #200021-119812/1, CHF 165,240 (HK\$ 1,137,204)
2009–2010	Sino-Swiss Grant with matching grant from the MS-CU-Joint Lab (CHF 4,500 + HK\$ 30,000) to finance three one-month visits to CUHK of Djano Kandaswamy
Oct. 2009–Sept. 2011	“Terahertz Probe for in Vivo Imaging”, PI (initial PI was Prof. E. McPherson), SHIAE #BME-p4-09, HK\$ 666,000
Jan. 2010–June 2013	“Non-Redundant Complex Wavelet Transform: Definition, Design and Implementation”, PI, RGC #CUHK410209, HK\$ 724,500
Jan. 2011–Dec. 2013	“Improved Algorithms for Finite Rate of Innovation Signals”, PI (with P.-L. Dragotti and M. Vetterli), RGC #CUHK410110, HK\$ 1,083,300
Jan. 2013–Dec. 2015	“Image restoration using unbiased risk estimates”, PI, RGC #CUHK410012, HK\$ 500,000
Sept. 2013–Feb. 2015	“Sparse and multiscale approaches to image alignment”, PI, Huawei, HK\$ 650,000
Jan. 2014–Dec. 2021	“Centre for Organelle Biogenesis and Function”, Co-I, RGC Area of Excellence, HK\$ 47,250,000
Nov. 2014–Oct. 2017	“Optimized image and volume interpolations”, PI, RGC #CUHK14200114, HK\$ 875,000
Jan. 2016–Dec. 2017	“FRI approximations”, PI, RGC #CUHK14600615, HK\$ 462,696
Apr. 2017–Dec. 2018	“Novel Total Internal Reflection THz Devices for High Speed Imaging”, PI (initial PI was Prof. E. McPherson), ITC #ITS/371/16, HK\$ 1,399,550
Jan. 2018–Dec. 2020	“Image Restoration from Binary Data Acquisition”, PI, RGC #CUHK14210617, HK\$ 495,846
Jan. 2018–Dec. 2020	“Novel TIR device for fast in vivo THz imaging”, PI (initial PI was Prof. E. McPherson), RGC #CUHK14206717, HK\$ 600,000
Jan. 2018–July 2019	“Develop Magnetic Resonance Imaging Technology for Fat-Water Imaging and Simultaneous $T_{1\rho}$ Quantification”, Co-I, ITC #ITS/051/17, HK\$ 1,395,789.50
Jan. 2019–Dec. 2021	“Local All-Pass Parametric Image Registration”, PI, RGC #CUHK14207718, HK\$ 700,000

PUBLICATIONS[†] (Updated on February 7, 2024)

Tutorial & Plenary Talks

- [1] T. Blu. Linear expansion of thresholds: A tool for approximating image processing algorithms. *Keynote Presentation at the ninth International Congress on Image and Signal Processing, BioMedical Engineering and Informatics (CISP-BMEI'16)*, Datong, China, October 15–17, 2016.
- [2] T. Blu. Image denoising and the SURE-LET methodology. *Tutorial Presentation at APSIPA Annual Summit and Conference 2010*, Singapore, December 14–17, 2010.
- [3] T. Blu. Sparsity through annihilation: Algorithms and applications. *Keynote Presentation at the Tenth IEEE International Conference on Signal Processing (ICSP'10)*, Beijing, China, October 24–28, 2010.
- [4] T. Blu and F. Luisier. Image denoising and the SURE-LET methodology. *Tutorial Presentation at the Seventeenth International Conference on Image Processing (ICIP'2010)*, Hong Kong, China, September 26–29, 2010.
- [5] M. Vetterli, P. Marziliano, T. Blu, and P.-L. Dragotti. Sparse sampling of structured data. *Tutorial Presentation at the Seventeenth European Signal Processing Conference (EUSIPCO'09)*, Glasgow, Scotland UK, August 24–28, 2009.
- [6] T. Blu. The SURE-LET methodology—A prior-free approach to signal and image denoising. *Plenary Presentation at the Eighth International Workshop on Sampling Theory and Applications (SampTA'09)*, Marseille, France, May 18–22, 2009.
- [7] M. Vetterli, P. Marziliano, T. Blu, and P.-L. Dragotti. Sparse sampling: Theory, algorithms and applications. *Tutorial Presentation at the Thirty-Fourth IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP'09)*, Taipei, Taiwan, April 19–24, 2009.

Patents

- [1] J.A. Urigi en, P.L. Dragotti, and T. Blu. Method and apparatus for sampling and reconstruction of signals. International patent WO/2014/191771, December 2014.
- [2] Qualcomm Inc., T. Blu, M. Vetterli, and L. Coulot. Sparse sampling of signal innovations. International patent WO/2009/096995, August 2009.
- [3] T. Blu, M. Unser, P. Th evenaz, and M. S uhling. Interpolation method and apparatus. International Patent WO2003021474, 2003.
- [4] M. Vetterli, P. Marziliano, and T. Blu. Sampling methods, reconstruction methods and devices for sampling and/or reconstructing signals. International Patent WO200278197, 2002. This technology was transferred to Qualcomm Inc. in 2007.

Book Chapters

- [1] T. Blu and J. Lebrun. Linear time-frequency analysis II: wavelet-type representations. In F. Hlawatsch and F. Auger, editors, *Time-Frequency Analysis - Concepts and Methods*, chapter 4, pages 93–130. Wiley-ISTE, London UK, 2008.
- [2] T. Blu and J. Lebrun. Analyse temps-fr equance lin eaire II: repr esentations de type ondelettes. In F. Hlawatsch and F. Auger, editors, *Temps-fr equence, concepts et outils*, Traitement du Signal et de l'Image, chapter 4, pages 101–138. Herm es, Paris, France, 2005.
- [3] P. Th evenaz, T. Blu, and M. Unser. Image interpolation and resampling. In I.N. Bankman, editor, *Handbook of Medical Imaging, Processing and Analysis*, chapter 25, pages 393–420. Academic Press, San Diego CA, USA, 2000.

PhD Thesis

- [1] T. Blu. *Bancs de filtres it er es en fraction d'octave — Application au codage de son (Iterated Rational Filter Banks with an Application to Audio Coding)*. PhD thesis, ENST Paris, Nr. 96 E 009, 1996. in French.

[†]Most papers are freely available at <http://www.ee.cuhk.edu.hk/~tblu/>

Journal Papers

- [1] Huiliang Ou, Rayko Ivanov Stantchev, Xuequan Chen, Thierry Blu, Mykhaylo Semtsiv, William Ted Masselink, Arturo I. Hernandez Serrano, Concalo Costa, Jacob Young, Nishtha Chopra, James Lloyd-Hughes, and Emma MacPherson. Simultaneous measurement of orthogonal terahertz fields via an emission multiplexing scheme. *Optics Express*, 32(4):5567–5581, 2024.
- [2] Jizhou Li, Si Chen, Daniel Ratner, Thierry Blu, Piero Pianetta, and Yijin Liu. Nanoscale chemical imaging with structured X-ray illumination. *Proceedings of the National Academy of Sciences*, 120(49):e2314542120, 2023.
- [3] Ruiming Guo and Thierry Blu. Super-resolving a frequency band. *IEEE Signal Processing Magazine*, 40(7):73–77, 2023.
- [4] Gang Luo, Yanping He, Xin Shu, Renjie Zhou, and Thierry Blu. Complex wave and phase retrieval from a single off-axis interferogram. *Journal of the Optical Society of America A*, 40(1):85–95, January 2023.
- [5] Yongfei Li, Ruiming Guo, Thierry Blu, and Hangfang Zhao. Robust sparse reconstruction of attenuated acoustic field with unknown range of source. *The Journal of the Acoustical Society of America*, 152(6):3523–3534, 2022.
- [6] R. Guo, Y. Li, T. Blu, and H. Zhao. Vector-FRI recovery of multi-sensor measurements. *IEEE Transactions on Signal Processing*, 70:4369–4380, 2022.
- [7] Shutian Zhao, Dónal G. Cahill, Siyue Li, Fan Xiao, Thierry Blu, James F. Griffith, and Weitian Chen. Denoising of three-dimensional fast spin echo magnetic resonance images of knee joints using spatial-variant noise-relevant residual learning of convolution neural network. *Computers in Biology and Medicine*, 151:106295, December 2022.
- [8] Y. Li, R. Guo, T. Blu, and H. Zhao. Generic FRI-based DOA estimation: A model-fitting method. *IEEE Transactions on Signal Processing*, 69:4102–4115, 2021.
- [9] R. Guo and T. Blu. Exploring the geometry of one-dimensional signals. *IEEE Transactions on Signal Processing*, 69:5299–5312, 2021.
- [10] R. Alexandru, T. Blu, and P.-L. Dragotti. Diffusion SLAM: Localising diffusion sources from samples taken by location-unaware mobile sensors. *IEEE Transactions on Signal Processing*, 69:5539–5554, 2021.
- [11] T. Küstner, J. Pan, H. Qi, G. Cruz, C. Gilliam, T. Blu, B. Yang, S. Gatidis, R. Botnar, and C. Prieto. LAPNet: Non-rigid registration derived in k-space for magnetic resonance imaging. *IEEE Transactions on Medical Imaging*, 40(12):3686–3697, December 2021.
- [12] R.I. Stantchev, X Yu, T. Blu, and E. Pickwell-MacPherson. Real-time terahertz imaging with a single-pixel detector. *Nature Communications*, 11(1):2535–2542, 21 May 2020.
- [13] R. Guo and T. Blu. FRI sensing: Retrieving the trajectory of a mobile sensor from its temporal samples. *IEEE Transactions on Signal Processing*, 68:5533–5545, 2020.
- [14] Q.Y.H. Ai, W. Chen, T.Y. So, W.K.J. Lam, B. Jiang, D.M.C. Poon, S. Qamar, F.K.F. Mo, T. Blu, Q. Chan, B.B.Y. Ma, E.P. Hui, K.C.A. Chan, and A.D. King. Quantitative T1 ρ MRI of the head and neck discriminates carcinoma and benign hyperplasia in the nasopharynx. *American Journal of Neuroradiology*, 2020.
- [15] T. Zhao and T. Blu. The Fourier-Argand representation: An optimal basis of steerable patterns. *IEEE Transactions on Image Processing*, 29(1):6357–6371, December 2020.
- [16] X. Zhang, C. Gilliam, and T. Blu. All-pass parametric image registration. *IEEE Transactions on Image Processing*, 29(1):5625–5640, December 2020.
- [17] B. Jiang, T. Jin, T. Blu, and W. Chen. Probing chemical exchange using quantitative spin-lock $R_{1\rho}$ asymmetry imaging with adiabatic RF pulses. *Magnetic Resonance in Medicine*, 82(5):1767–1781, November 2019.
- [18] J. Li, F. Xue, F. Qu, Y.-P. Ho, and T. Blu. On-the-fly estimation of a microscopy point spread function. *Optics Express*, 26(20):26120–26133, October 2018.
- [19] H. Pan, T. Blu, and M. Vetterli. Efficient multi-dimensional Diracs estimation with linear sample complexity. *IEEE Transactions on Signal Processing*, 66(17):4642–4656, September 2018.
- [20] C. Gilliam and T. Blu. Local All-Pass geometric deformations. *IEEE Transactions on Image Processing*, 27(2):1010–1025, February 2018.

- [21] J. Li, F. Luisier, and T. Blu. PURE-LET image deconvolution. *IEEE Transactions on Image Processing*, 27(1):92–105, January 2018.
- [22] H. Pan, M. Simeoni, P. Hurley, T. Blu, and M. Vetterli. LEAP: Looking beyond pixels with continuous-space Estimation of Point sources. *Astronomy & Astrophysics*, A&A 608:A136, 1–14, December 2017.
- [23] T. Küstner, M. Schwartz, P. Martirosian, S. Gatidis, F. Seith, C. Gilliam, T. Blu, H. Fayad, D. Visvikis, F. Schick, B. Yang, H. Schmidt, and N.F. Schwenzer. MR-based respiratory and cardiac motion correction for PET imaging. *Medical Image Analysis*, 42:129–144, December 2017.
- [24] J. Li, F. Xue, and T. Blu. Fast and accurate 3D PSF computation for fluorescence microscopy. *Journal of the Optical Society of America A*, 34(6):1029–1034, June 2017.
- [25] H. Pan, T. Blu, and M. Vetterli. Towards generalized FRI sampling with an application to source resolution in radioastronomy. *IEEE Transactions on Signal Processing*, 65(4):821–835, February 2017.
- [26] Z. Doğan, C. Gilliam, T. Blu, and D. Van De Ville. Reconstruction of finite rate of innovation signals with model-fitting approach. *IEEE Transactions on Signal Processing*, 63(22):6024–6036, November 2015.
- [27] F. Xue and T. Blu. A novel SURE-based criterion for parametric PSF estimation. *IEEE Transactions on Image Processing*, 24(2):595–607, February 2015.
- [28] Z. Doğan, T. Blu, and D. Van De Ville. Finite-rate-of-innovation for the inverse source problem of radiating fields. *Sampling Theory in Signal and Image Processing*, 13(3):271–294, 2014.
- [29] H. Pan, T. Blu, and P.-L. Dragotti. Sampling curves with finite rate of innovation. *IEEE Transactions on Signal Processing*, 62(2):458–471, January 2014.
- [30] J.A. Urigüen, T. Blu, and P.-L. Dragotti. FRI sampling with arbitrary kernels. *IEEE Transactions on Signal Processing*, 61(21):5310–5323, November 2013.
- [31] D. Kandaswamy, T. Blu, and D. Van De Ville. Analytic sensing for multi-layer spherical models with application to EEG source imaging. *Inverse Problems and Imaging*, 7(4):1251–1270, November 2013.
- [32] N. Chacko, M. Liebling, and T. Blu. Discretization of continuous convolution operators for accurate modeling of wave propagation in digital holography. *Journal of the Optical Society of America A*, 30(10):2012–2020, October 2013.
- [33] H. Pan and T. Blu. An iterative linear expansion of thresholds for ℓ_1 -based image restoration. *IEEE Transactions on Image Processing*, 22(9):3715–3728, September 2013.
- [34] F. Xue, F. Luisier, and T. Blu. Multi-Wiener SURE-LET deconvolution. *IEEE Transactions on Image Processing*, 22(5):1954–1968, May 2013.
- [35] F. Luisier, T. Blu, and P.J. Wolfe. A CURE for noisy magnetic resonance images: Chi-square unbiased risk estimation. *IEEE Transactions on Image Processing*, 21(8):3454–3466, August 2012.
- [36] E.P.J. Parrott, S.M.Y. Sy, T. Blu, V.P. Wallace, and E. Pickwell-MacPherson. Terahertz pulsed imaging in vivo: measurements and processing methods. *Journal of Biomedical Optics*, 16(10):106010 1–8, October 2011.
- [37] F. Luisier, T. Blu, and M. Unser. Image denoising in mixed Poisson-Gaussian noise. *IEEE Transactions on Image Processing*, 20(3):696–708, March 2011.
- [38] D. Van De Ville, B. Forster-Heinlein, M. Unser, and T. Blu. Analytical footprints: Compact representation of elementary singularities in wavelet bases. *IEEE Transactions on Signal Processing*, 58(12):6105–6118, December 2010.
- [39] J.P. Lie, T. Blu, and C.M.S. See. Single antenna power measurements based direction finding. *IEEE Transactions on Signal Processing*, 58(11):5682–5692, November 2010.
- [40] A.F. Stalder, T. Melchior, M. Müller, D. Sage, T. Blu, and M. Unser. Low-bond axisymmetric drop shape analysis for surface tension and contact angle measurements of sessile drops. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 364(1–3):72–81, July 2010.
- [41] F. Luisier, T. Blu, and M. Unser. SURE-LET for orthonormal wavelet-domain video denoising. *IEEE Transactions on Circuits and Systems for Video Technology*, 20(6):913–919, June 2010.

- [42] F. Luisier, C. Vonesch, T. Blu, and M. Unser. Fast interscale wavelet denoising of Poisson-corrupted images. *Signal Processing*, 90(2):415–427, February 2010.
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