



THIERRY BLU

IEEE Fellow

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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

2008–present	<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–)
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–) 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)

AWARDS

IEEE Signal Processing Society’s 2003 **Best Paper Award** for the article entitled *Wavelets, fractals, and radial basis functions* (with M. Unser) [78, 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) [75, 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) [52, journals]

ICIP’05 **Best Student Paper Award** for the article entitled *Beyond interpolation: Optimal reconstruction by quasi-interpolation* (First author: L. Condat) [85, 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) [25, 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) [23, 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

- 2021– Zihan Zhang, “Blind Source Separation” (PhD–CUHK)
- 2019– Zikai Sun, “Image Super-Resolution” (PhD–CUHK)
- 2018– 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: *Computer Committee* (Chairman), *Research Committee* (Chairman), *Department Academic Personnel Committee*, *Non-Teaching Staff Review Panel*, *Curriculum Committee*, *Teaching & Learning Committee* (Vice-chairman), *Examination matters*, *Teaching Lab*, *Scholarship*, *Student Activities*, *Library Coordinator*; and of the Faculty of Engineering: *Engineering Panel*, *Engineering Mathematics Subject Panel*, *Outstanding Thesis Award Selection Panel*.

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 September 18, 2022)

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. Urigüen, 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. Thévenaz, and M. Sühling. 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-fréquence linéaire II: représentations de type ondelettes. In F. Hlawatsch and F. Auger, editors, *Temps-fréquence, concepts et outils*, Traitement du Signal et de l'Image, chapter 4, pages 101–138. Hermès, Paris, France, 2005.
- [3] P. Thévenaz, 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.

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

PhD Thesis

- [1] T. Blu. *Bancs de filtres itérés 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.

Journal Papers

- [1] 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.
- [2] 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.
- [3] R. Guo and T. Blu. Exploring the geometry of one-dimensional signals. *IEEE Transactions on Signal Processing*, 69:5299–5312, 2021.
- [4] 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.
- [5] 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.
- [6] 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.
- [7] 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.
- [8] 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.
- [9] 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.
- [10] X. Zhang, C. Gilliam, and T. Blu. All-pass parametric image registration. *IEEE Transactions on Image Processing*, 29(1):5625–5640, December 2020.
- [11] 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.
- [12] 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.
- [13] 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.
- [14] C. Gilliam and T. Blu. Local All-Pass geometric deformations. *IEEE Transactions on Image Processing*, 27(2):1010–1025, February 2018.
- [15] J. Li, F. Luisier, and T. Blu. PURE-LET image deconvolution. *IEEE Transactions on Image Processing*, 27(1):92–105, January 2018.
- [16] 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.
- [17] 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.
- [18] 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.

- [19] 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.
- [20] 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.
- [21] 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.
- [22] 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.
- [23] 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.
- [24] J.A. Urigiën, T. Blu, and P.-L. Dragotti. FRI sampling with arbitrary kernels. *IEEE Transactions on Signal Processing*, 61(21):5310–5323, November 2013.
- [25] 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.
- [26] 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.
- [27] 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.
- [28] F. Xue, F. Luisier, and T. Blu. Multi-Wiener SURE-LET deconvolution. *IEEE Transactions on Image Processing*, 22(5):1954–1968, May 2013.
- [29] 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.
- [30] 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.
- [31] 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.
- [32] 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.
- [33] 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.
- [34] 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.
- [35] 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.
- [36] 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.
- [37] J. Berent, P.-L. Dragotti, and T. Blu. Sampling piecewise sinusoidal signals with finite rate of innovation methods. *IEEE Transactions on Signal Processing*, 58(2):613–625, February 2010.
- [38] D. Kandaswamy, T. Blu, and D. Van De Ville. Analytic sensing: Noniterative retrieval of point sources from boundary measurements. *SIAM Journal on Scientific Computing*, 31(4):3179–3194, 2009.
- [39] J.-M. Mari, T. Blu, O. Bou Matar, M. Unser, and C. Cachard. A bulk modulus dependent linear model for acoustical imaging. *Journal of the Acoustical Society of America*, 125(4):2413–2419, April 2009.

- [40] Y. Barbotin, D. Van De Ville, T. Blu, and M. Unser. Fast computation of polyharmonic B-Spline autocorrelation filters. *IEEE Signal Processing Letters*, 15:773–776, 2008.
- [41] S. Ramani, T. Blu, and M. Unser. Monte-Carlo SURE: A black-box optimization of regularization parameters for general denoising algorithms. *IEEE Transactions on Image Processing*, 17(9):1540–1554, September 2008.
- [42] B. Forster, T. Blu, D. Van De Ville, and M. Unser. Shift-invariant spaces from rotation-covariant functions. *Applied and Computational Harmonic Analysis*, 25(2):240–265, September 2008.
- [43] F. Luisier and T. Blu. SURE-LET multichannel image denoising: Interscale orthonormal wavelet thresholding. *IEEE Transactions on Image Processing*, 17(4):482–492, April 2008.
- [44] S. Ramani, D. Van De Ville, T. Blu, and M. Unser. Nonideal sampling and regularization theory. *IEEE Transactions on Signal Processing*, 56(3):1055–1070, March 2008.
- [45] T. Blu, P.-L. Dragotti, M. Vetterli, P. Marziliano, and L. Coulot. Sparse sampling of signal innovations. *IEEE Signal Processing Magazine*, 25(2):31–40, March 2008.
- [46] T. Blu and F. Luisier. The SURE-LET approach to image denoising. *IEEE Transactions on Image Processing*, 16(11):2778–2786, November 2007.
- [47] D. Van De Ville, M.L. Seghier, F. Lazeyras, T. Blu, and M. Unser. WSPM: Wavelet-based statistical parametric mapping. *NeuroImage*, 37(4):1205–1217, October 1, 2007.
- [48] C. Vonesch, T. Blu, and M. Unser. Generalized Daubechies wavelet families. *IEEE Transactions on Signal Processing*, 55(9):4415–4429, September 2007.
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