

# Publication List

April 23, 2022

## 1 Peer-reviewed journal articles

- [1] G. Daval-Fr erot, B. Massire, A. Mailhe, M. Nadar, A. Vignaud, and **P. Ciuciu**, “Iterative  $\Delta B_0$  field map estimation for off-resonance correction in non-Cartesian susceptibility weighted imaging,” *Magnetic Resonance in Medicine*, Apr. 2022.
- [2] Chaithya G R, P. Weiss, A. Massire, A. Vignaud, and **P. Ciuciu**, “Optimizing full 3D SPARKLING trajectories for high-resolution Magnetic Resonance imaging,” *IEEE Transactions on Medical Imaging*, Mar. 2022.
- [3] Z. Ramzi, Chaithya G R, J.-L. Starck, and **P. Ciuciu**, “Density-Compensated Unrolled Networks for 2D and 3D non-Cartesian MRI Reconstruction,” *IEEE Transactions on Medical Imaging*, Jan. 2022.
- [4] Z. Ramzi, K. Michalewicz, J.-L. Starck, T. Moreau, and **P. Ciuciu**, “Wavelets in the Deep Learning Era,” *submitted to Journal of Mathematical Imaging and Vision*, CEA Saclay CosmoStat, NeuroSpin & Inria Parietal, Saclay, France, July 2021.
- [5] H. Cherkaoui, T. Moreau, A. Halimi, C. Leroy, and **P. Ciuciu**, “Multivariate semi-blind deconvolution of fMRI time series,” *NeuroImage*, vol. 241, no. 118418, Nov. 2021.
- [6] M. Muckley, B. Riemenschneider, A. Radmanesh, S. Kim, G. Jeong, J. Ko, Y. Jun, H. Shin, D. Hwang, M. Mostapha, S. Arberet, Z. Nickel, D. Ramzi, **P. Ciuciu**, J.-L. Starck, J. Teuwen, D. Karkaloulos, C. Zhang, Z. Sriram, A. Huang, N. Yakubova, Y.W. Lui, and F. Knoll, “Results of the 2020 fastMRI Challenge for Machine Learning MR Image Reconstruction,” *IEEE Transactions on Medical Imaging*, vol. 40, no. 9, pp. 2306–2317, Sep. 2021.
- [7] M. Jacob, L. El Gueddari, J.-M Lin, G. Navarro, A. Jannaud, P. Bayle-Guillemaud, **P. Ciuciu**, and Z. Saghi, “Gradient-based and wavelet-based compressed sensing approaches for highly undersampled tomographic datasets,” *Ultramicroscopy*, vol. 225, no. 113289, Apr. 2021.

- [8] L. El Gueddari, Chaithya G R, E. Chouzenoux, and **P. Ciuciu**, “Calibration-less multi-coil compressed sensing Magnetic Resonance Image reconstruction based on OSCAR regularization,” *Journal of Imaging*, vol. 7, no. 3, pp. 58–77, Mar. 2021, Special issue on *Inverse problems and Imaging*.
- [9] D. La Rocca, H. Wendt, V. van Wassenhove, **P. Ciuciu**, and P. Abry, “Fractal connectivity: Revisiting functional connectivity for infraslow scale-free brain dynamics using complex wavelets,” *Frontiers in Physiology*, vol. 11, no. Article 578537, Jan. 2021.
- [10] S. Farrens, A. Grigis, , Z. El Gueddari, L. Ramzi, Chaithya G R, S. Starck, B. Sarthou, H. Cherkaoui, **P. Ciuciu**, and J.-L. Starck, “PySAP: Python Sparse Data Analysis Package for multidisciplinary image processing,” *Astronomy and Computing*, vol. 32, no. 100402, July 2020.
- [11] C. Lazarus, P. Weiss, , L. El Gueddari, F. Mauconduit, A. Massire, M. Ripart, A. Vignaud, and **P. Ciuciu**, “3D variable-density SPARKLING trajectories for high-resolution  $T_2^*$ -weighted Magnetic Resonance Imaging,” *NMR in Biomedicine*, vol. 33, no. e4349, pp. 1–12, 2020.
- [12] Z. Ramzi, **P. Ciuciu**, and J.-L. Starck, “Benchmarking MRI reconstruction neural networks on large public datasets,” Applied Sciences, *Special issue on Signal Processing and Machine Learning for Biomedical Data*, vol. 10, no. 5, pp. 1816, Feb. 2020.
- [13] D. La Rocca, **P. Ciuciu**, D. Engemann, and V. van Wassenhove, “Emergence of  $\beta$  and  $\gamma$  networks following multisensory training,” *Neuroimage*, vol. 206, pp. Article 116313, Feb, 1 2020.
- [14] C. Lazarus, P. Weiss, N. Chauffert, F. Mauconduit, L. El Gueddari, C. Destrieux, I. Zemmoura, A. Vignaud, and **P. Ciuciu**, “SPARKLING: variable-density k-space filling curves for accelerated  $T_2^*$ -weighted MRI,” *Magnetic Resonance in Medicine*, vol. 81, no. 6, pp. 3643–3661, June 2019.
- [15] Patryk Filipiak, Rutger Fick, Mathieu Petiet, Alexandra Santin, Anne-Charlotte Philippe, Stéphane Lehericy, **P. Ciuciu**, Rachid Deriche, and Demian Wassermann, “Reducing the number of samples in spatio-temporal dMRI acquisition design,” *Magnetic Resonance in Medicine*, vol. 81, no. 5, pp. 3218–3233, May 2019.
- [16] A. de Pierrefeu, T. Löfstedt, C. Laidi, F. Hadj-Selem, J. Bourgin, T. Hajek, F. Spaniel, M. Kolenic, **P. Ciuciu**, N. Hamdani, M. Leboyer, T. Fovet, R. Jardri, J. Houenou, and E. Duchesnay, “Identifying a neuroanatomical signature of schizophrenia, reproducible across sites and stages, using machine-learning with structured sparsity,” *Acta Psychiatrica Scandinavica*, vol. 138, no. 6, pp. 571–580, Dec. 2018.
- [17] D. La Rocca, N. Zilber, P. Abry, V. van Wassenhove, and **P. Ciuciu**, “Self-similarity and multifractality in human brain activity: a wavelet-based analysis of scale-free brain dynamics,” *Journal of Neuroscience Methods*, vol. 309, pp. 175–187, Nov. 2018.
- [18] C. Lazarus, P. Weiss, A. Vignaud, and **P. Ciuciu**, “An empirical study of the maximum degree of acceleration in Compressed Sensing MRI for  $T_2^*$ -weighted imaging,” *Magnetic Resonance Imaging*, vol. 53, pp. 112–122, Nov. 2018.

- [19] A. de Pierrefeu, T. Fovet, F. Hadj-Selem, T. Löfstedt, **P. Ciuciu**, S. Lefebvre, P. Thomas, R. Lopes, R. Jardri, and E. Duchesnay, “Prediction of activation patterns preceding hallucinations in patients with schizophrenia using machine learning with structured sparsity,” *Human Brain Mapping*, vol. 39, no. 4, pp. 1777–1788, 2018.
- [20] A. de Pierrefeu, T. Löfstedt, F. Hadj-Selem, M. Dubois, **P. Ciuciu**, V. Frouin, and E. Duchesnay, “Structured sparse Principal Component Analysis with the TV-Elastic net penalty,” *IEEE Transactions on Medical Imaging*, vol. 37, no. 2, pp. 396–407, 2018.
- [21] N. Chauffert, **P. Ciuciu**, J. Kahn, and P. Weiss, “A projection method on measures sets,” *Constructive Approximation*, vol. 45, no. 1, pp. 83–111, 2017.
- [22] M. Albughdadi, L. Chaari, J.-Y. Tournet, F. Forbes, and **P. Ciuciu**, “A Bayesian non-parametric hidden Markov model for hemodynamic brain parcellation,” *Signal Processing*, pp. 132–146, 2017.
- [23] N. Chauffert, **P. Ciuciu**, J. Kahn, and P. Weiss, “A projection method on measures sets,” *Constructive Approximation*, vol. 45, no. 1, pp. 83–111, Feb. 2017.
- [24] C. Boyer, N. Chauffert, **P. Ciuciu**, J. Kahn, and P. Weiss, “On the generation of sampling schemes for Magnetic Resonance Imaging,” *SIAM Journal on Imaging Sciences*, vol. 9, no. 4, pp. 2039–2072, 2016.
- [25] N. Chauffert, P. Weiss, J. Kahn, and **P. Ciuciu**, “A projection algorithm for gradient waveforms design in Magnetic Resonance Imaging,” *IEEE Trans. Med. Imag.*, vol. 35, no. 9, pp. 2026–2039, Sep. 2016.
- [26] F. Pedregosa, M. Eickenberg, **P. Ciuciu**, B. Thirion, and A. Gramfort, “Data-driven HRF estimation for encoding and decoding models,” *Neuroimage*, vol. 104, pp. 209–220, Jan. 2015.
- [27] L. Chaari, **P. Ciuciu**, S. Mériaux, and J.-C. Pesquet, “Spatio-temporal wavelet regularization for parallel MRI reconstruction: application to functional MRI,” *MAGMA*, vol. 27, no. 6, pp. 509–529, Dec. 2014.
- [28] N. Chauffert, **P. Ciuciu**, J. Kahn, and P. Weiss, “Variable density sampling with continuous trajectories. Application to MRI,” *SIAM Journal on Imaging Sciences*, vol. 7, no. 4, pp. 1962–1992, Nov. 2014.
- [29] A. Florescu, E. Chouzenoux, J.-C. Pesquet, **P. Ciuciu**, and S. Ciochina, “A majorize-minimize memory gradient method for complex-valued inverse problems,” *Signal Processing*, vol. 103, pp. 285–295, Oct. 2014.
- [30] **P. Ciuciu**, P. Abry, and B.J. He, “Interplay between scale-free dynamics and functional connectivity in intrinsic fMRI networks,” *Neuroimage*, vol. 95, pp. 248–263, July 2014.

- [31] N. Zilber, **P. Ciuciu**, A. Gramfort, and V. van Wassenhove, “Supramodal plasticity optimizes perceptual learning,” *Neuroimage*, vol. 93, no. Part 1, pp. 32–46, June 2014.
- [32] T. Vincent, S. Badillo, L. Chaari, C. Bakhous, F. Forbes, and **P. Ciuciu**, “Flexible multivariate hemodynamics fMRI data analyses and simulations with PyHRF,” *Frontiers in Neurosciences*, vol. 8, Article 67, pp. 1–15, Apr. 2014.
- [33] S. Badillo, T. Vincent, and **P. Ciuciu**, “Group-level impacts of within- and between-subject hemodynamic variability in fMRI,” *Neuroimage*, vol. 82, pp. 433–448, 15 Nov. 2013.
- [34] L. Chaari, T. Vincent, F. Forbes, M. Dojat, and **P. Ciuciu**, “Fast joint detection-estimation of evoked brain activity in event-related fMRI using a variational approach,” *IEEE Trans. Med. Imag.*, vol. 32, no. 5, pp. 821–837, May 2013.
- [35] N. Zilber, **P. Ciuciu**, A. Gramfort, and V. van Wassenhove, “Supramodal processing in visual learning and plasticity,” *Multisensory Research*, vol. 26, pp. 113–114, 2013.
- [36] **P. Ciuciu**, G. Varoquaux, P. Abry, S. Sadaghiani, and A. Kleinschmidt, “Scale-Free and Multifractal Time Dynamics of fMRI Signals during Rest and Task,” *Frontiers in physiology*, vol. 3, no. Article 186, pp. 1–18, June 2012.
- [37] L. Chaari, J.-C. Pesquet, A. Benazza-Benyahia, and **P. Ciuciu**, “A wavelet-based regularized reconstruction algorithm for SENSE parallel MRI with applications to neuroimaging,” *Medical Image Analysis*, vol. 15, no. 2, pp. 185–201, 2011.
- [38] L. Risser, T. Vincent, F. Forbes, J. Idier, and **P. Ciuciu**, “Min-max extrapolation scheme for fast estimation of 3D Potts field partition functions. application to the joint detection-estimation of brain activity in fMRI,” *J. Sig. Proc. Syst.*, vol. 65, no. 3, pp. 325–338, Dec. 2011.
- [39] L. Chaari, J.-C. Pesquet, J.-Y. Tourneret, **P. Ciuciu**, and A. Benazza-Benyahia, “A hierarchical Bayesian model for frame representation,” *IEEE Trans. Signal Processing*, vol. 58, pp. 5560–5571, Nov. 2010.
- [40] **P. Ciuciu**, T. Vincent, L. Risser, and S. Donnet, “A joint detection-estimation framework for analysing within-subject fMRI data,” *Journal de la Société Française de Statistiques*, vol. 151, no. 1, pp. 58–89, 2010.
- [41] T. Vincent, L. Risser, and **P. Ciuciu**, “Spatially adaptive mixture modeling for analysis of within-subject fMRI time series,” *IEEE Trans. Med. Imag.*, vol. 29, no. 4, pp. 1059–1074, Apr. 2010.
- [42] Anne Botzung, E. Denkova, **P. Ciuciu**, Christian Scheiber, and Lilianne Manning, “The neural bases of the constructive nature of autobiographical memories studied with a self-paced fMRI design,” *Memory*, vol. 16, no. 4, pp. 351–363, Apr. 2008.

- [43] **P. Ciuciu**, P. Abry, C. Rabrait, and H. Wendt, “Log wavelet leaders cumulant based multifractal analysis of EVI fMRI time series: evidence of scaling in ongoing and evoked brain activity,” *IEEE Journal of Selected Topics in Signal Processing*, vol. 2, no. 6, pp. 929–943, Dec. 2008.
- [44] T. Adali, Z.J. Wang, M.J. McKeown, **P. Ciuciu**, L.K. Hansen, A. Cichocki, and V.D. Calhoun, “Introduction to the issue on fMRI analysis for human brain mapping,” *IEEE Journal of Selected Topics in Signal Processing*, vol. 2, no. 6, pp. 813–816, Dec. 2008.
- [45] S. Makni, J. Idier, T. Vincent, B. Thirion, G. Dehaene-Lambertz, and **P. Ciuciu**, “A fully Bayesian approach to the parcel-based detection-estimation of brain activity in fMRI,” *Neuroimage*, vol. 41, no. 3, pp. 941–969, July 2008.
- [46] C. Rabrait, **P. Ciuciu**, A. Ribès, C. Poupon, P. Leroux, V. Lebon, G. Dehaene-Lambertz, D. Le Bihan, and F. Lethimonnier, “High temporal resolution functional MRI using parallel echo volume imaging,” *Journal of Magnetic Resonance Imaging*, vol. 27, no. 4, pp. 744–753, Mar. 2008.
- [47] B. Thirion, P. Pinel, A. Tucholka, A. Roche, **P. Ciuciu**, J.-F. Mangin, and J.-B. Poline, “Structural analysis of fMRI data revisited: Improving the sensitivity and reliability of fMRI group studies,” *IEEE Trans. Med. Imag.*, vol. 26, no. 9, pp. 1256–1269, Sep. 2007.
- [48] G. Dehaene-Lambertz, S. Dehaene, J.-L. Anton, A. Campagne, **P. Ciuciu**, Guillaume P. Dehaene, I. Denghien, A. Jobert, D. Le Bihan, Mariano Sigman, Ch. Pallier, and J.-B. Poline, “Functional segregation of cortical language areas by sentence repetition,” *Hum. Brain Mapp.*, vol. 27, pp. 360–371, 2006.
- [49] Ch. Grova, S. Makni, G. Flandin, **P. Ciuciu**, J. Gotman, and J.-B. Poline, “Anatomically informed interpolation of fMRI data on the cortical surface,” *Neuroimage*, vol. 31, pp. 1475–1486, 2006.
- [50] B. Thirion, G. Flandin, P. Pinel, A. Roche, **P. Ciuciu**, and J.-B. Poline, “Dealing with the shortcomings of spatial normalization: multi-subject parcellation of fMRI datasets,” *Hum. Brain Mapp.*, vol. 27, no. 8, pp. 678–693, Aug. 2006.
- [51] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Joint detection-estimation of brain activity in functional MRI: a multichannel deconvolution solution,” *IEEE Trans. Signal Processing*, vol. 53, no. 9, pp. 3488–3502, Sep. 2005.
- [52] S. Dehaene, A. Jobert, L. Naccache, **P. Ciuciu**, J.-B. Poline, D. Le Bihan, and L. Cohen, “Letter binding and invariant recognition of masked words: Behavioral and neuroimaging evidence,” *Psychological Science*, vol. 15, no. 5, pp. 307–313, 2004.
- [53] G. Marrelec, **P. Ciuciu**, M. Péligrini-Issac, and H. Benali, “Estimation of the hemodynamic response function in event-related functional MRI: Bayesian networks as a framework for efficient Bayesian modeling and inference,” *IEEE Trans. Med. Imag.*, vol. 23, no. 8, pp. 959–967, Aug. 2004.

- [54] G. Marrelec, H. Benali, **P. Ciuciu**, M. Péligrini-Issac, and J.-B. Poline, “Robust Bayesian estimation of the hemodynamic response function in event-related BOLD MRI using basic physiological information,” *Hum. Brain Mapp.*, vol. 19, no. 1, pp. 1–17, May 2003.
- [55] **P. Ciuciu**, J.-B. Poline, G. Marrelec, J. Idier, Ch. Pallier, and H. Benali, “Unsupervised robust non-parametric estimation of the hemodynamic response function for any fMRI experiment,” *IEEE Trans. Med. Imag.*, vol. 22, no. 10, pp. 1235–1251, Oct. 2003.
- [56] **P. Ciuciu** and J. Idier, “A Half-Quadratic block-coordinate descent method for spectral estimation,” *Signal Processing*, vol. 82, no. 7, pp. 941–959, July 2002.
- [57] **P. Ciuciu**, J. Idier, and J.-F. Giovannelli, “Regularized estimation of mixed spectra using a circular Gibbs-Markov model,” *IEEE Trans. Signal Processing*, vol. 49, no. 10, pp. 2202–2213, Oct. 2001.

## 2 Scientific mediation articles (since 2005)

- [1] C. Ferrand and **P. Ciuciu**, “La recherche en astrophysique façonne les algorithmes d’imagerie de demain,” *Dr Imago*, vol. <https://docteurimago.fr>, pp. 1–4, July 2021.
- [2] **P. Ciuciu**, “When the brain meets the stars: Knowledge made visible to the naked eye,” *Contact Magazine*, vol. XX, pp. 46–47, Mar. 2021.
- [3] **P. Ciuciu** and J.-L. Starck, “De la tête aux étoiles,” *Les voies de la Recherche – Clefs CEA*, vol. 70, pp. 46–47, Mar. 2020.
- [4] **P. Ciuciu** and B. Thirion, “Échantillonnage comprimé pour temps d’acquisition réduit,” *Les Défis du CEA*, , no. 225, pp. 2–3, Mar. 2018.
- [5] **P. Ciuciu** and B. Thirion, “Comprendre le cerveau par l’image: L’imagerie par résonance magnétique fonctionnelle sensible au débit sanguin,” *Clefs CEA*, , no. 56, pp. 38–42, Dec. 2007.
- [6] . J.-B. Poline, **P. Ciuciu**, A. Roche, and B. Thirion, “Quelle confiance accorder aux images du cerveau en action?,” *Pour la Science*, vol. 338, pp. 138–142, Dec. 2005.

## 3 Manuscripts in preparation (2020)

## 4 Abandoned manuscripts

- [1] D. La Rocca, **P. Ciuciu**, P. Abry, and V. van Wassenhove, “Learning-induced modulation of multifractal brain dynamics during visual motion discrimination,” submitted to *The Journal of Neuroscience*, CEA/NeuroSpin, INRIA Saclay Parietal & INSERM UNICOG U992, Saclay, France, Mar. 2019.

- [2] S. Bougacha, R. Phlypo, B. Thirion, **P. Ciuciu**, and G. Varoquaux, “On the geometry of functional connectomes: how to compute group-level statistics,” in revision to *Neuroimage*, CEA NeuroSpin, Gif-sur-Yvette, France, Jan. 2018.
- [3] **P. Ciuciu**, S. Bougacha, F. Boumezbeur, S. Desmidt, C. Ginisty, L. Laurier, J.-R. Deverre, L. Hertz-Pannier, N. Tardy, M. Pueyo, and K. Bernard, “S 47445, a positive allosteric modulator of ampa receptors, improves functional connectivity of brain networks in elderly healthy volunteers during a working memory task,” submitted to *European J. Neuropsychopharmacology*, CEA/NeuroSpin & IRIS Servier, Saclay, France, July 2017.
- [4] A. Frau-Pascual, S. Bougacha, Th. Perret, F. Forbes, and **P. Ciuciu**, “Functional ASL and BOLD fMRI group analysis: a comparison of different methodologies,” submitted to *Neuroimage*, CEA/NeuroSpin & INRIA Saclay Parietal, Saclay, France, July 2017.
- [5] F. Frau-Pascual, A. Forbes, Th. Perret, and **P. Ciuciu**, “Classical vs Bayesian analysis of functional ASL data: A model comparison approach,” submitted to *IEEE Transactions on Medical Imaging*, CEA/NeuroSpin & INRIA Saclay Parietal, Saclay, France, June 2017.
- [6] L. Chaari, S. Badillo, Th. Vincent, G. Dehaene-Lambertz, F. Forbes, and **P. Ciuciu**, “Subject-level joint parcellation-detection-estimation in fMRI,” submitted to *IEEE Trans. Med. Imag.*, IRIT Toulouse & CEA/NeuroSpin & INRIA Saclay and INRIA Grenoble, Jan. 2016.

## 5 Book chapters (since 2013)

- [1] **P. Ciuciu**, F. Forbes, T. Vincent, and L. Chaari, “Joint detection-estimation in functional MRI,” in *Regularization and Bayesian Methods for Inverse Problems in Signal and Image Processing*, Jean-François Giovannelli and Jérôme Idier, Eds., pp. 169–199. ISTE-Wiley, Feb. 2015.
- [2] J.-B. Poline, **P. Ciuciu**, A. Roche, and B. Thirion, “Intra and inter subject analyses of brain functional Magnetic Resonance Images (fMRI),” in *Handbook of Biomedical Imaging*, Nikos Paragios, James Duncan, and Nicholas Ayache, Eds. Springer US, 2015.
- [3] **P. Ciuciu**, F. Forbes, T. Vincent, and L. Chaari, “Détection-estimation conjointe en IRM fonctionnelle,” in *Méthodes d’inversion appliquées au traitement du signal et de l’image*, J.-F. Giovannelli and J. Idier, Eds. Hermes Science Publishing, Sep. 2013, To appear.
- [4] **P. Ciuciu**, *Méthodes markoviennes en estimation spectrale non paramétrique. Applications en imagerie radar Doppler*, Éditions universitaires européennes, July 2013, ISBN 978-613-1-56588-5.

## 6 Communications in peer-reviewed international conferences (since 1999)

- [1] Chaithya G R, Z. Ramzi, and **P. Ciuciu**, “Hybrid learning of Non-Cartesian k-space trajectory and MR image reconstruction networks,” in *19th International Symposium on Biomedical Imaging*, Kolkata, India, Mar. 2022.
- [2] G R Chaithya Pooja, Kumari, Z. Ramzi, and **P. Ciuciu**, “MC-PDNet: Deep Unrolled Neural Network for Multi-contrast MR Image Reconstruction from Undersampled k-space data,” in *19th International Symposium on Biomedical Imaging*, Kolkata, India, Mar. 2022.
- [3] Z. Ramzi, F. Mannel, S. Bai, J.-L. Starck, , **P. Ciuciu**, and T. Moreau, “SHINE: SHaring the INverse Estimate from the forward pass for bi-level optimization and implicit models,” in *International Conference on Learning Representations (ICLR)*, Jan. 2022.
- [4] Chaithya G R, Z. Ramzi, and **P. Ciuciu**, “Learning the sampling density in 2D SPARKLING MRI acquisition for optimized image reconstruction,” in *29th European Signal Processing Conference (EUSIPCO)*, Dublin, Ireland, Sep. 2021, pp. 960–964.
- [5] Z. Ramzi, **P. Ciuciu**, and J.-L. Starck, “Density Compensated Unrolled Networks for Non-Cartesian MRI Reconstruction,” in *18th International Symposium on Biomedical Imaging*, Nice, France, Apr. 2021, pp. 1443–1447.
- [6] Zaccharie Ramzi, Benjamin Remy, Francois Lanusse, Jean-Luc Starck, and **P. Ciuciu**, “Denoising score-matching for uncertainty quantification in inverse problems,” in *NeurIPS workshop on Deep Learning for Inverse Problems*, Virtual event, Dec. 2020, pp. 1–8.
- [7] Z. Ramzi, J.-L. Starck, T. Moreau, and **P. Ciuciu**, “Wavelets in the deep learning era,” in *28th European Signal Processing Conference (EUSIPCO)*, Amsterdam, Netherlands (virtual), Jan. 2021, pp. 1417–1421, Paper id 1806.
- [8] J.-M. Lin, M. Jacob, Z. Saghi, **P. Ciuciu**, and J.-L. Starck, “PySAP-ComSET: an accelerated python package for compressed sensing electron tomography (CS-ET) reconstruction,” in *the 8th International Workshop on OpenCL, SYSCL, Vulkan and SPIR-V*, Munich, Germany, Apr. 2020.
- [9] Z. Ramzi, **P. Ciuciu**, and J.-L. Starck, “Benchmarking deep nets MRI reconstruction models on the FastMRI publicly available dataset,” in *17th International Symposium on Biomedical Imaging*, Iowa City, IO, USA (virtual), Apr. 2020, pp. 1441–1445.
- [10] H. Cherkaoui, T. Perret, A. Halimi, and **P. Ciuciu**, “fMRI BOLD signal decomposition using a multivariate low-rank model,” in *27th European Signal Processing Conference (EUSIPCO)*, La Corugna, Spain, Sep. 2019, pp. 1–5.



- [11] L. El Gueddari, E. Chouzenoux, J.-C. Pesquet, and **P. Ciuciu**, “Online MR image reconstruction for compressed sensing acquisition in  $T_2^*$  imaging,” in *Wavelets and Sparsity XVIII*. International Society for Optics and Photonics, Aug. 2019, vol. 11138, pp. 1113819–1–1113819–15.
- [12] L. Jacob, M. El Gueddari, G. Navarro, M.-C. Cyrille, P. Bayle-Guillemaud, **P. Ciuciu**, and Z. Saghi, “Statistical machine learning and compressed sensing approaches for analytical electron tomography - application to phase change materials,” in *Microsc. Microanal.*, Microscopy Society of America 2019, Ed., Aug. 2019, vol. 25 (Suppl. 2), pp. 156–157.
- [13] V. van Wassenhove, D. La Rocca, D. Engelmann, and **P. Ciuciu**, “Temporal attention vs. comodulation in multisensory causal inference,” in *Proceedings of the 23rd International Congress on Acoustics*, Aachen, Germany, Sep. 2019, pp. 1–8.
- [14] Z. Ramzi, **P. Ciuciu**, and J.-L. Starck, “Benchmarking proximal methods acceleration enhancements for CS-acquired MR image analysis reconstruction,” in *(SPARS)*, Toulouse, France, July 2019.
- [15] H. Cherkaoui, T. Perret, A. Halimi, and **P. Ciuciu**, “Sparsity-based blind deconvolution of neural activation signal in fMRI,” in *44th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Brighton, UK, May 2019, pp. 1323–1327.
- [16] C. Lazarus, P. Weiss, N. Chauffert, F. Mauconduit, L. El Gueddari, A. Vignaud, C. Destrieux, I. Zemmoura, and **P. Ciuciu**, “SPARKLING: variable-density k-space filling curves for accelerated MRI,” in *27th Proceedings International Society for Magnetic Resonance in Medicine*, Montreal, QC, Canada, May 2019, Abstract 110: Finalist of the Young Investigator Award.
- [17] O. Darwiche-Domingues, **P. Ciuciu**, D. La Rocca, P. Abry, and H. Wendt, “Multifractal analysis for cumulant-based epileptic seizure detection in EEG time series,” in *16th International Symposium on Biomedical Imaging*, Venice, Italy, Apr. 2019, pp. 143–146.
- [18] L. El Gueddari, **P. Ciuciu**, E. Chouzenoux, A. Vignaud, and J.-C. Pesquet, “Calibrationless OSCAR-based image reconstruction in compressed sensing parallel MRI,” in *16th International Symposium on Biomedical Imaging*, Venice, Italy, Apr. 2019, pp. 1532–1536.
- [19] C. Lazarus, P. Weiss, L. El Gueddari, A. Vignaud, and **P. Ciuciu**, “Z-variable-density stack of 2D SPARKLING for isotropic high resolution  $T_2^*$  MRI at 7 Tesla,” in *International BASP Frontiers workshop 2019*, Villars-sur-Ollon, Switzerland, Feb. 2019, p. 95.
- [20] H. Cherkaoui, L. El Gueddari, C. Lazarus, A. Grigis, F. Poupon, A. Vignaud, S. Farrens, J.-L. Starck, and **P. Ciuciu**, “Analysis vs synthesis-based regularization for combined compressed sensing and parallel MRI reconstruction at 7 Tesla,” in *26th European Signal Processing Conference (EUSIPCO)*, Roma, Italy, Sep. 2018, pp. 36–40.
- [21] D. La Rocca, V. van Wassenhove, **P. Ciuciu**, H. Wendt, R. Leonarduzzi, and P. Abry, “Scale-free functional connectivity analysis from source reconstructed MEG data,” in *26th European Signal Processing Conference (EUSIPCO)*, Roma, Italy, Sep. 2018, pp. 1411–1415.

- [22] L. El Gueddari, C. Lazarus, H. Carrié, A. Vignaud, and **P. Ciuciu**, “Self-calibrating nonlinear reconstruction algorithms for variable density sampling and parallel reception MRI,” in *10th IEEE Sensory Array and Multichannel (SAM) signal processing workshop*, Sheffield, UK, July 2018, pp. 415–419.
- [23] A. de Pierrefeu, T. Löfstedt, C. Laidi, F. Hadj-Selem, M. Leboyer, **P. Ciuciu**, J. Houenou, and E. Duchesnay, “Interpretable and stable prediction of schizophrenia on a large multisite dataset using machine learning with structured sparsity,” in *Proceedings of the 2018 International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, Singapore, June 2018, pp. 57–60.
- [24] H. Wendt, P. Abry, and **P. Ciuciu**, “Spatially regularized wavelet leader scale-free analysis of fMRI data,” in *15th International Symposium on Biomedical Imaging*, Washington DC, USA, Apr. 2018, pp. 1248–1251.
- [25] J. Arias, **P. Ciuciu**, M. Dojat, F. Forbes, A. Frau-Pascual, Th. Perret, and J. Warnking, “PyHRF: A Python library for the analysis of fMRI data based on local estimation of hemodynamic response function,” in *Proc. of the 15th Python in Science Conference*, Austin, TX, USA, July 2017.
- [26] **P. Ciuciu**, H. Wendt, S. Combrexelle, and P. Abry, “Spatially regularized multifractal analysis for fMRI data,” in *Proc. of the 39th IEEE EMBC*, Jeju Island, Korea, July 2017.
- [27] C. Lazarus, N. Chauffert, P. Weiss, J. Kahn, A. Vignaud, and **P. Ciuciu**, “New physically plausible compressive sampling schemes for high resolution MRI,” in *International BASP Frontiers workshop 2017*, Villars-sur-Ollon, Switzerland, Jan. 2017, p. 69.
- [28] **P. Ciuciu**, S. Bougacha, F. Boumezbeur, S. Desmidt, C. Ginisty, L. Laurier, J.-R. Deverre, L. Hertz-Pannier, N. Tardy, M. Pueyo, and Katy Bernard, “Effect of S 47445 on functional connectivity at rest and during a task, and on glutamate concentrations in elderly subjects,” in *The Journal of Prevention of Alzheimer’s Disease: 9th Clinical Trials on Alzheimer’s Disease (CTAD)*, San Diego, USA, Dec. 2016, vol. 3 (4), pp. 274–275.
- [29] M. Rahim, **P. Ciuciu**, and S. Bougacha, “Impact of perceptual learning on resting-state fMRI connectivity: A supervised classification study,” in *24th European Signal Processing Conference (EUSIPCO)*, Budapest, Hungary, Aug. 2016, pp. 250–254.
- [30] M. Albughdadi, L. Chaari, F. Forbes, J.-Y. Tourneret, and **P. Ciuciu**, “Multi-subject joint parcellation detection estimation in functional MRI,” in *13th International Symposium on Biomedical Imaging*, Prague, Czech Republic, Apr. 2016, pp. 74–77.
- [31] H. Pellé, **P. Ciuciu**, M. Rahim, E. Dohmatob, P. Abry, and V. van Wassenhove, “Multivariate Hurst exponent estimation in fMRI. Application to brain decoding of perceptual learning,” in *13th International Symposium on Biomedical Imaging*, Prague, Czech Republic, Apr. 2016, pp. 996–1000.

- [32] A. Frau-Pascual, F. Forbes, and **P. Ciuciu**, “Variational expectation-maximization solution to ASL fMRI data analysis,” in *Proceedings 18th International Conference on Medical Image Computing and Computer Assisted Intervention*, Munich, Germany, Oct. 2015, LNCS 9349, pp. 85–92, Springer.
- [33] A. Frau-Pascual, F. Forbes, and **P. Ciuciu**, “Variational physiologically informed solution to hemodynamic and perfusion response estimation from ASL fMRI data,” in *Proceedings of the 2015 International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, Stanford, (CA) USA, June 2015, pp. 57–60.
- [34] A. Frau-Pascual, F. Forbes, and **P. Ciuciu**, “Physiological models comparison for the analysis of ASL fMRI data,” in *12th International Symposium on Biomedical Imaging*, New-York, NY, Apr. 2015, pp. 1348–1351.
- [35] N. Chauffert, P. Weiss, M. Boucher, S. Mériaux, and **P. Ciuciu**, “Variable density sampling based on physically plausible gradient waveform. application to 3D MRI angiography,” in *12th International Symposium on Biomedical Imaging*, New-York, NY, Apr. 2015, pp. 298–301.
- [36] M. Albughdadi, L. Chaari, F. Forbes, J.-Y. Tournier, and **P. Ciuciu**, “Model selection for hemodynamic brain parcellation in FMRI,” in *22nd European Signal Processing Conference (EUSIPCO)*, Lisbon, Portugal, Sep. 2014, pp. 31–35.
- [37] S. Badillo, S. Desmidt, C. Ginisty, and **P. Ciuciu**, “Multi-subject Bayesian joint detection and estimation in fMRI,” in *Proceedings of the 2014 International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, Tübingen, Germany, June 2014, pp. 211–215.
- [38] Y. Bekhti, N. Zilber, F. Pedregosa, **P. Ciuciu**, V. van Wassenhove, and A. Gramfort, “Decoding perceptual thresholds from MEG/EEG,” in *Proceedings of the 2014 International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, Tübingen, Germany, June 2014.
- [39] A. Frau-Pascual, T. Vincent, J. Sloboda, **P. Ciuciu**, and F. Forbes, “Physiologically informed Bayesian analysis of ASL fMRI data,” in *Bayesian and graphical Models for Biomedical Imaging*, pp. 37–48. Springer, 2014.
- [40] A. Frau-Pascual, T. Vincent, F. Forbes, and **P. Ciuciu**, “Hemodynamically informed parcellation of cerebral fMRI data,” in *Proceedings 39th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Florence, Italy, May 2014, pp. 2079–2083.
- [41] T. Vincent, J. Warnking, M. Villien, A. Krainik, **P. Ciuciu**, and F. Forbes, “Bayesian Joint Detection-Estimation of cerebral vasoreactivity from ASL fMRI data,” in *Proceedings 16th International Conference on Medical Image Computing and Computer Assisted Intervention*, Nagoya, Japan, Sep. 2013, LNCS 8150, pp. 616–624.
- [42] A. Florescu, E. Chouzenoux, J.-C. Pesquet, **P. Ciuciu**, and S. Ciochina, “A complex-valued majorize-minimize memory gradient method with application to parallel magnetic resonance imaging,” in *21st European Signal Processing Conference (EUSIPCO)*, Marrakech, Morocco, sep. , 9-13 2013.

- [43] N. Chauffert, **P. Ciuciu**, P. Weiss, and F. Gamboa, “From variable density sampling to continuous sampling using Markov chains,” in *10th International Conference on Sampling Theory and Applications*, Bremen, Germany, July 2013, pp. 200–203.
- [44] N. Chauffert, **P. Ciuciu**, J. Kahn, and P. Weiss, “Traveling salesman-based variable density sampling,” in *10th International Conference on Sampling Theory and Applications*, Bremen, Germany, July 2013, pp. 509–512.
- [45] S. Badillo, G. Varoquaux, and **P. Ciuciu**, “Hemodynamic estimation based on consensus clustering,” in *Proceedings of the 2013 International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, Philadelphia, USA, June 2013, pp. 211–215.
- [46] A.-L. Fouque, C. Fisher, V. Frouin, **P. Ciuciu**, and E. Duchesnay, “Comparison of features for voxel-based analysis and classification of anatomical neuroimaging data,” in *Proceedings of the 2013 International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, Philadelphia, USA, June 2013, pp. 186–189.
- [47] T. Vincent, F. Forbes, and **P. Ciuciu**, “Bayesian BOLD and perfusion source separation and deconvolution from functional ASL imaging,” in *Proceedings 38th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Vancouver, Canada, May 2013, pp. 1003–1007.
- [48] N. Chauffert, **P. Ciuciu**, and P. Weiss, “Variable density compressed sensing in MRI. Theoretical vs heuristic sampling strategies,” in *10th International Symposium on Biomedical Imaging*, San Francisco, CA, Apr. 2013, pp. 298–301.
- [49] S. Badillo, T. Vincent, and **P. Ciuciu**, “Multi-session extension of the joint-detection framework in fMRI,” in *10th International Symposium on Biomedical Imaging*, San Francisco, CA, Apr. 2013, pp. 1504–1507.
- [50] N. Zilber, **P. Ciuciu**, P. Abry, and van Wassenhove V., “Learning-induced modulation of scale-free properties of brain activity measured with MEG,” in *10th International Symposium on Biomedical Imaging*, San Francisco, CA, Apr. 2013, pp. 986–989.
- [51] C. Bakhous, F. Forbes, T. Vincent, M. Dojat, and **P. Ciuciu**, “Variational variable selection to assess experimental condition relevance in event-related fMRI,” in *10th International Symposium on Biomedical Imaging*, San Francisco, CA, Apr. 2013, pp. 1500–1503.
- [52] L. Chaari, F. Forbes, T. Vincent, and **P. Ciuciu**, “Hemodynamic-informed parcellation of fMRI data in a variational joint detection estimation framework,” in *MICCAI*, Nice, France, Oct. 2012, LNCS 7512, pp. 180–188, Springer Verlag Berlin Heidelberg.
- [53] L. Chaari, F. Forbes, T. Vincent, and **P. Ciuciu**, “Robust voxel-wise joint detection estimation of brain activity in fMRI,” in *19th Proceedings of the International Conference on Image Processing*, Orlando, USA, Oct. 2012, pp. 1273–1276.

- [54] C. Bakhous, F. Forbes, T. Vincent, L. Chaari, M. Dojat, and **P. Ciuciu**, “Adaptive experimental condition selection in event-related fMRI,” in *9th International Symposium on Biomedical Imaging*, Barcelona, Spain, May 2012, pp. 1755–1758.
- [55] N. Zilber, **P. Ciuciu**, P. Abry, and V. van Wassenhove, “Modulation of scale-free properties of brain activity in MEG,” in *9th International Symposium on Biomedical Imaging*, Barcelona, Spain, May 2012, pp. 1531–1534.
- [56] C. Boyer, **P. Ciuciu**, P. Weiss, and S. Mériaux, “HYR<sup>2</sup>PICS: Hybrid regularized reconstruction for combined parallel imaging and compressive sensing in MRI,” in *9th International Symposium on Biomedical Imaging*, Barcelona, Spain, May 2012, pp. 66–69.
- [57] L. Chaari, F. Forbes, T. Vincent, M. Dojat, and **P. Ciuciu**, “Variational solution to the joint detection estimation of brain activity in fMRI,” in *MICCAI*, Toronto, Canada, Sep. 2011, LNCS 6892 (Part II), pp. 260–268, Springer Verlag Berlin Heidelberg.
- [58] A.L. Fouque, P. Fillard, A. Bargiacchi, A. Cachia, M. Zilbovicius, B. Thyreau, E. Le Floch, **P. Ciuciu**, and E. Duchesnay, “Voxelwise multivariate statistics and brain-wide machine learning using the full diffusion tensor,” in *MICCAI*, Toronto, Canada, Sep. 2011, LNCS 6892 (Part II), pp. 9–16, Springer Verlag Berlin Heidelberg.
- [59] L. Chaari, F. Forbes, **P. Ciuciu**, T. Vincent, and M. Dojat, “Bayesian variational approximation for the joint detection estimation of brain activity in fMRI,” in *IEEE Workshop on Statistical Signal Processing (SSP)*, Nice, France, June 2011.
- [60] L. Chaari, J.-C. Pesquet, J.-Y. Tournier, and **P. Ciuciu**, “Parameter estimation for hybrid wavelet-total variation regularization,” in *IEEE Workshop on Statistical Signal Processing (SSP)*, Nice, France, June, 28-30 2011.
- [61] S. Badillo, T. Vincent, and **P. Ciuciu**, “Impact of the joint detection-estimation approach on random effects group studies in fMRI,” in *8th International Symposium on Biomedical Imaging*, Chicago, IL, Apr. 2011, pp. 376–380.
- [62] A. Marin, C. Chaux, J.-C. Pesquet, and **P. Ciuciu**, “Image reconstruction from multiple sensors using Stein’s principle. Application to parallel MRI,” in *8th International Symposium on Biomedical Imaging*, Chicago, IL, Apr. 2011, pp. 465–468.
- [63] **P. Ciuciu**, G. Varoquaux, P. Abry, and M. Almog, “Multifractal analysis of resting state networks in functional MRI,” in *8th International Symposium on Biomedical Imaging*, Chicago, IL, Apr. 2011, pp. 473–478.
- [64] L. Chaari, S. Mériaux, S. Badillo, **P. Ciuciu**, and J.-C. Pesquet, “3D wavelet-based regularization for parallel MRI reconstruction: impact on subject and group-level statistical sensitivity in fMRI,” in *8th International Symposium on Biomedical Imaging*, Chicago, IL, Apr. 2011, pp. 460–464.

- [65] L. Chaari, S. Mériaux, J.-C. Pesquet, and **P. Ciuciu**, “Impact of the parallel imaging reconstruction algorithm on brain activity detection in fMRI,” in *IEEE ISABEL Symposium*, Roma, Italy, Nov. 2010.
- [66] S. Badillo, T. Vincent, and **P. Ciuciu**, “Spatially adaptive subject level analyses improve random effects fMRI group studies,” in *IEEE ISABEL Symposium*, Roma, Italy, Nov. 2010.
- [67] G. Varoquaux, M. Keller, J.-B. Poline, **P. Ciuciu**, and B. Thirion, “Ica-based sparse features recovery from fMRI datasets,” in *7th International Symposium on Biomedical Imaging*, Rotterdam, The Netherlands, Apr. 2010, pp. 1177–1180.
- [68] L. Chaari, J.-C. Pesquet, J.-Y. Tourneret, **P. Ciuciu**, and A. Benazza-Benyahia, “A hierarchical Bayesian model for frame representation,” in *34th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Dallas, USA, Mar. 2010, pp. 4086–4089.
- [69] T. Vincent, L. Risser, **P. Ciuciu**, and J. Idier, “Spatially unsupervised analysis of within-subject fMRI data using multiple extrapolations of 3D Ising field partition functions,” in *2009 IEEE international workshop on Machine Learning for Signal Processing*, Grenoble, France, Sep. 2009.
- [70] L. Risser, **P. Ciuciu**, and J. Idier, “Bilinear extrapolation scheme for fast estimation of 3D ising field partition function. Application to fMRI time course analysis,” in *16th Proceedings of the International Conference on Image Processing*, Cairo, Egypt, Nov. 2009, pp. 833–836.
- [71] L. Chaari, A. Benazza-Benyahia, J.-C. Pesquet, and **P. Ciuciu**, “Wavelet based parallel MRI regularization using bivariate sparsity promoting priors,” in *16th Proceedings of the International Conference on Image Processing*, Cairo, Egypt, November 7-11 2009, pp. 460–464.
- [72] L. Risser, T. Vincent, **P. Ciuciu**, and J. Idier, “Robust extrapolation scheme for fast estimation of 3D Ising field partition functions. application to within-subject fMRI data analysis.,” in *12th Proceedings MICCAI*, G.-Z. Yang, Ed., London, UK, Sep. 2009, LNCS 5761, pp. 975–983, Springer Verlag Berlin Heidelberg.
- [73] **P. Ciuciu**, S. Sockeel, T. Vincent, and J. Idier, “Modelling the neurovascular habituation effect on fMRI time series,” in *34th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Taipei, Taiwan, Apr. 2009, pp. 433–436.
- [74] L. Chaari, J.-C. Pesquet, A. Benazza-Benyahia, and **P. Ciuciu**, “Minimization of a sparsity promoting criterion for the recovery of complex-valued signals,” in *Signal Processing with Adaptive Sparse Structured Representations Workshop (SPARS)*, Saint-Malo, France, April 6-9 2009.
- [75] T. Vincent et **P. Ciuciu** et B. Thirion, “Sensitivity analysis of parcellation in the joint detection-estimation of brain activity in fMRI,” in *5th International Symposium on Biomedical Imaging*, Paris, France, May 2008, pp. 568–571.

- [76] **P. Ciuciu**, T. Vincent, A.-L. Fouque, and A. Roche, “Improved fMRI group studies based on spatially varying non-parametric BOLD signal modeling,” in *5th International Symposium on Biomedical Imaging*, Paris, France, May 2008, pp. 1263–1266.
- [77] L. Chaari, J.-C. Pesquet, A. Benazza-Benyahia, and **P. Ciuciu**, “Autocalibrated parallel MRI reconstruction in the wavelet domain,” in *5th International Symposium on Biomedical Imaging*, Paris, France, May 14-17 2008, pp. 756–759.
- [78] T. Vincent, **P. Ciuciu**, and J. Idier, “Application and validation of spatial mixture modelling for the joint detection-estimation of brain activity in fMRI,” in *29th Proceedings IEEE EMBS*, Lyon , France, Aug. 2007, pp. 5218–5222.
- [79] **P. Ciuciu**, P. Abry, C. Rabrait, and H. Wendt, “Leader-based multifractal analysis for EVI fMRI time series: ongoing vs. task-related brain activity,” in *4th International Symposium on Biomedical Imaging*, Arlington, VA, Apr. 2007, pp. 404–407.
- [80] T. Vincent, **P. Ciuciu**, and J. Idier, “Spatial mixture modelling for the joint detection-estimation of brain activity in fMRI,” in *32th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Honolulu, Hawaii, Apr. 2007, vol. I, pp. 325–328.
- [81] B. Thirion, A. Roche, **P. Ciuciu**, and J.-B. Poline, “Improving sensitivity and reliability of fMRI group studies through high level combination of individual subjects results,” in *Proceedings MM-BIA2006*, New York, USA, June17-18 2006.
- [82] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Bayesian joint detection-estimation of brain activity using MCMC with a Gamma-Gaussian mixture prior model,” in *31th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Toulouse, France, May 2006, vol. V, pp. 1093–1096.
- [83] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Joint detection-estimation of brain activity in fMRI using an autoregressive noise model,” in *3rd International Symposium on Biomedical Imaging*, Arlington, VA, Apr. 2006, pp. 1048–1051.
- [84] S. Donnet et M. Lavielle et **P. Ciuciu** et J.-B. Poline, “Selection of temporal models for event-related fMRI,” in *2nd International Symposium on Biomedical Imaging*, Arlington, VA, Apr. 2004, pp. 992–995.
- [85] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Semi-blind deconvolution of neural impulse response in fMRI using a Gibbs sampling method,” in *29th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Montreal, Quebec, Canada, May 2004, vol. V, pp. 601–604.
- [86] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Semi-blind deconvolution of neural impulse response in event-related fMRI using Gibbs sampler,” in *2nd International Symposium on Biomedical Imaging*, Arlington, VA, Apr. 2004, pp. 860–863.

- [87] **P. Ciuciu** and J. Idier, “regularized doppler radar imaging for target identification in atmospheric clutter,” in *29th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Montreal, Canada, May 2004, vol. V, pp. 265–268.
- [88] **P. Ciuciu**, J. Idier, A. Roche, and Ch. Pallier, “Outlier detection for robust region-based estimation of the hemodynamic response function in event-related fMRI,” in *2nd International Symposium on Biomedical Imaging*, Arlington, VA, Apr. 2004, pp. 392–395.
- [89] G. Marrelec, **P. Ciuciu**, M. Péligrini-Issac, and H. Benali, “Estimation of the hemodynamic response function in event-related functional MRI: Directed acyclic graphs for a general Bayesian inference framework,” in *Proceedings 18th International Conference on Information Processing in Medical Imaging*, Chris Taylor and J. Alison Noble, Eds., Ambleside, United Kingdom, 2003, LNCS-2732, pp. 635–646, Springer Verlag.
- [90] F. Kherif, G. Flandin, **P. Ciuciu**, H. Benali, O. Simon, and J.-B. Poline, “Model based spatial and temporal similarity measures between series of functional Magnetic Resonance Images,” in *Proceedings 5th International Conference on Medical Image Computing and Computer Assisted Intervention*, Tokyo, Japan, Sep. 2002, LNCS 2488 (Part II), pp. 509–516, Springer Verlag.
- [91] **P. Ciuciu**, G. Marrelec, J.-B. Poline, J. Idier, and H. Benali, “Robust estimation of the hemodynamic response function in asynchronous multitasks multisessions event-related fMRI paradigms,” in *1st International Symposium on Biomedical Imaging*, Washington, DC, July 2002, pp. 847–850.
- [92] G. Marrelec, H. Benali, **P. Ciuciu**, and J.-B. Poline, “Bayesian estimation of the hemodynamic response function in functional MRI,” in *Bayesian Inference and Maximum Entropy Methods*, Robert Fry, Ed., Baltimore, MD, Aug. 2001, MaxEnt Workshops.
- [93] **P. Ciuciu**, J. Idier, and J.-F. Giovannelli, “Markovian high resolution spectral analysis,” in *24th Proceedings of the International Conference on Acoustic, Speech and Signal Processing*, Phoenix, AZ, Mar. 1999, pp. 1601–1604, (oral).

## 7 Communications in peer-reviewed national conferences (since 1997)

- [1] C. Lazarus, P. Weiss, N. Chauffert, A. Vignaud, and **P. Ciuciu**, “SPARKLING: nouveaux schémas d’échantillonnage compressif prospectif pour l’IRM haute résolution,” in *Actes du 26<sup>e</sup> colloque GRETSI*, Juan-Les-Pins, France, Sep. 2017.
- [2] **P. Ciuciu**, N. Zilber, P. Abry, and V. van Wassenhove, “La convergence de l’activité neurale vers des attracteurs multifractaux localisés prédit la  $\epsilon$  d’apprentissage,” in *Actes du 25<sup>e</sup> colloque GRETSI*, Lyon, France, Sep. 2015, number 147.



- [3] F. Forbes, A. Frau-Pascual, and **P. Ciuciu**, “Méthode d’approximation variationnelle pour l’analyse de données d’irm fonctionnelle acquises par ASL,” in *Actes du 25<sup>e</sup> colloque GRETSI*, Lyon, France, Sep. 2015, number 314.
- [4] P. Weiss, N. Chauffert, C. Boyer, J. Kahn, and **P. Ciuciu**, “Sur la génération de schémas d’échantillonnage compressé en IRM,” in *Actes du 25<sup>e</sup> colloque GRETSI*, Lyon, France, Sep. 2015, number 260.
- [5] N. Chauffert, **P. Ciuciu**, J. Kahn, and P. Weiss, “Comment représenter une image avec un spaghetti?,” in *Actes du 25<sup>e</sup> colloque GRETSI*, Lyon, France, Sep. 2015, number 235.
- [6] C. Bakhous, F. Forbes, F. Enikeeva, T. Vincent, M. Dojat, and **P. Ciuciu**, “Analyse parcimonieuse des données d’IRM fonctionnelle dans un cadre bayésien variationnel,” in *Journées de Statistique de la Société Française de Statistique (SFdS)*, Toulouse, France, May 27 - 31 2013.
- [7] C. Bakhous, F. Forbes, T. Vincent, L. Chaari, M. Dojat, and **P. Ciuciu**, “Sélection de variable dans un cadre bayésien de traitement de données IRM fonctionnelle,” in *Journées de Statistique de la Société Française de Statistique (SFdS)*, Brussels, Belgium, May 21 - 25 2012.
- [8] L. Chaari, F. Forbes, T. Vincent, and **P. Ciuciu**, “Parcel-free joint detection-estimation in fMRI,” in *Journées de Statistique de la Société Française de Statistique (SFdS)*, Brussels, Belgium, May 21 - 25 2012.
- [9] L. Chaari, F. Forbes, **P. Ciuciu**, T. Vincent, and M. Dojat, “A variational Bayesian approach for the joint detection estimation of brain activity in functional MRI,” in *Journées de Statistique de la Société Française de Statistique (SFdS)*, Tunis, Tunisia, May 23 - 27 2011.
- [10] **P. Ciuciu**, S. Sockeel, J. idier, and T. Vincent, “Modélisation de l’habituatation neurovasculaire de l’activité cérébrale en IRM fonctionnelle,” in *Actes du 22<sup>e</sup> colloque GRETSI*, Dijon, France, Sep. 2009, number 445.
- [11] A.-L. Fouque, **P. Ciuciu**, L. Risser, and T. Vincent, “Mélanges spatiaux gaussiens multivariés pour la classification de paramètres hémodynamiques en IRM fonctionnelle,” in *Actes du 22<sup>e</sup> colloque GRETSI*, Dijon, France, Sep. 2009, number 636.
- [12] L. Risser, T. Vincent, and **P. Ciuciu**, “Schéma d’extrapolation de fonctions de partition de champs de pots. application à l’analyse d’images en IRMf,” in *Actes du 22<sup>e</sup> colloque GRETSI*, Dijon, France, Sep. 2009, number 540.
- [13] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Approche bayésienne de détection-estimation conjointe de l’activité cérébrale en IRMf,” in *5th TAIMA*, Hammamet, Tunisie, May 2007, pp. 404–410.

- [14] T. Vincent, **P. Ciuciu**, and J. Idier, “Mélanges spatiaux pour la détection-estimation conjointe de l’activité cérébrale en imagerie fonctionnelle (IRMf),” in *Actes du 21<sup>e</sup> colloque GRETSI*, Troyes, France, Sep. 2007, pp. 133–136.
- [15] **P. Ciuciu**, J. Idier, T. Veit, and T. Vincent, “Application du rééchantillonnage stochastique de l’échelle en détection-estimation de l’activité cérébrale par IRMf,” in *Actes du 21<sup>e</sup> colloque GRETSI*, Troyes, France, Sep. 2007, pp. 373–376.
- [16] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Détection-estimation conjointe de l’activité cérébrale en imagerie fonctionnelle (IRMf),” in *Actes du 20<sup>e</sup> colloque GRETSI*, Sep. 2005, pp. 295–298.
- [17] **P. Ciuciu**, J. Idier, G. Flandin, and J.-B. Poline, “Estimation régularisée et non supervisée de la fonction de réponse hémodynamique en imagerie cérébrale fonctionnelle (IRMf),” in *Actes du 19<sup>e</sup> colloque GRETSI*, Sep. 2003, pp. 312–315.
- [18] **P. Ciuciu**, J. Idier, and J.-F. Giovannelli, “Estimation spectrale régularisée de fouillis et de cibles en imagerie radar Doppler,” in *Actes du 18<sup>e</sup> colloque GRETSI*, Toulouse, France, Sep. 2001, pp. 479–482.
- [19] **P. Ciuciu**, J. Idier, and J.-F. Giovannelli, “Analyse spectrale non paramétrique haute résolution,” in *Actes du 17<sup>e</sup> colloque GRETSI*, Vannes, France, Sep. 1999, pp. 721–724.
- [20] J. Idier, J.-F. Giovannelli, and **P. Ciuciu**, “Interprétation régularisée des périodogrammes et extensions non quadratiques,” in *Actes du 16<sup>e</sup> colloque GRETSI*, Grenoble, France, Sep. 1997, pp. 695–698.

## 8 Abstracts in peer-reviewed international conferences (since 2002)

- [1] Chaithya G R and **P. Ciuciu**, “Benchmarking learned non-Cartesian k-space trajectories and reconstruction networks,” in *30th Proc. ISMRM*, London, UK, May 2022, number 3308.
- [2] Chaithya G R, G. Daval-Frérot, B. Massire, A. and Mailhe, M. Nadar, A. Vignaud, and **P. Ciuciu**, “MORE-SPARKLING: Non-Cartesian trajectories with Minimized Off-Resonance Effects,” in *30th Proc. ISMRM*, London, UK, May 2022, number 1435.
- [3] Z. Amor, Chaithya G R, C. Le Ster, G. Daval-Frérot, N. Boulant, F. Mauconduit, C. Mirkes, **P. Ciuciu**, and A. Vignaud, “ $B_0$  field distortions monitoring and correction for 3D non-Cartesian fMRI acquisitions using a field camera: Application to 3D-SPARKLING at 7T,” in *30th Proc. ISMRM*, London, UK, May 2022, number 2822.

- [4] Z. Amor, Chaithya G R, B. Daval-Fr erot, G. Thirion, F. Mauconduit, C. Mirkes, **P. Ciuciu**, and A. Vignaud, “Prospects of non-Cartesian 3D-SPARKLING encoding for functional MRI: A preliminary case study for retinotopic mapping,” in *30th Proc. ISMRM*, London, UK, May 2022, number 2823.
- [5] R. Baptista, A. Vignaud, Chaithya G R, G. Daval-Fr erot, F. Mauconduit, M. Naudin, M. Lapert, R. Guillevin, **P. Ciuciu**, C. Lerman-Rabrait, and F. Boumezbeur, “Evaluation of 3D SPARKLING readout for Sodium UTE MRI at ultra-high magnetic field,” in *30th Proc. ISMRM*, London, UK, May 2022.
- [6] H. Cherkaoui, T. Moreau, **P. Ciuciu**, B. Fernandez, M. Bottlaender, N. Tournier, and C. Leroy, “Characterization of the haemodynamic response function after a buprenorphine challenge study in human healthy volunteer,” in *27th Proc. HBM*, Virtual, June 2021.
- [7] A. Waguet, T. Druet, O. Mesnil, and **P. Ciuciu**, “Nonlinear compressed sensing applied to guided wave tomography for the reconstruction of corrosion in structural health monitoring applications,” in *QNDE 2201*, Virtual, July 2021, number 75121.
- [8] Z. Ramzi, **P. Ciuciu**, and J.-L. Starck, “XPDNet for MRI reconstruction: An application to the 2020 fastMRI challenge,” in *29th Proc. ISMRM*, virtual, May 2021, number 0275.
- [9] Z. Ramzi, **P. Ciuciu**, A. Vignaud, and J.-L. Starck, “Is good old GRAPPA dead?,” in *29th Proc. ISMRM*, virtual, May 2021, number 1168.
- [10] G. Daval-Fr erot, A. Massire, M. Ripart, B. Mailhe, M. Nadar, A. Vignaud, and **P. Ciuciu**, “Off-resonance correction non-Cartesian SWI using internal field map estimation,” in *29th Proc. ISMRM*, virtual, May 2021, number 3551.
- [11] B. Riemenschneider, M. Muckley, A. Radmanesh, S. Kim, G. Jeong, J. Ko, H. Shin, D. Hwang, M. Mostapha, S. Arberet, D. Nickel, Z. Ramzi, **P. Ciuciu**, J.-L. Starck, J. Teuwen, D. Karkalousos, C. Zhang, A. Sriram, Z. Huang, N. Yakubova, Y. W. Lui, and F. Knoll, “Results of the 2020 fastMRI Brain Reconstruction Challenge,” in *29th Proc. ISMRM*, virtual, May 2021, number 0063.
- [12] H. Cherkaoui, T. Moreau, A. Halimi, C. Leroy, and **P. Ciuciu**, “Data-driven haemodynamic response function estimation: a semi-blind multivariate deconvolution of the fMRI signal,” in *26th Proc. HBM*, Virtual, June 2020.
- [13] A. Massire, C. Giliyar-Radhakrishna, E. El Gueddari, F. Mauconduit, C. Lazarus, M. Ripart, P. Brugi eres, **P. Ciuciu**, and A. Vignaud, “Compressed sensing accelerated susceptibility-weighted imaging at 3T with SPARKLING: looking for favorable parametrization,” in *28th Proc. ISMRM*, Paris, France, Aug. 2020.
- [14] M. Jacob, J.-M Lin, **P. Ciuciu**, P. Bayle-Guillemaud, and Z. Saghi, “PySAP-ComSET: a Python toolbox for compressed sensing approaches in electron tomography,” in *European Microscopy Conference*, Aug. 2020, pp. –.

- [15] L. El Gueddari, C. Giliyar Radhakrishna, Z. Ramzi, S. Farrens, S. Starck, A. Grigis, J.-L. Starck, and **P. Ciuciu**, “PySAP-MRI: A Python package for MR image reconstruction,” in *ISMRM workshop on Data Sampling and Image Reconstruction*, Sedona, AZ, United States, Jan. 2020.
- [16] J.-M. Lin, G. Kowalik, J. Montalt Tordera, B. Sarthou, **P. Ciuciu**, J. Steeden, and V. Muthurangu, “Application of memory reduced NUFFT to multi-dimensional non-Cartesian MRI,” in *27th Proc. ISMRM*, Montreal, QC, Canada, May 2019, number 822.
- [17] L. El Gueddari, E. Chouzenoux, J.-C. Pesquet, A. Vignaud, and **P. Ciuciu**, “Online compressed sensing MR image reconstruction for high resolution  $T_2^*$  imaging,” in *27th Proc. ISMRM*, Montreal, QC, Canada, May 2019, number 4655.
- [18] L. El Gueddari, E. Chouzenoux, J.-C. Pesquet, A. Vignaud, and **P. Ciuciu**, “OSCAR-based reconstruction for compressed sensing and parallel MR imaging,” in *27th Proc. ISMRM*, Montreal, QC, Canada, May 2019, number 1049.
- [19] C. Lazarus, P. Weiss, L. El Gueddari, F. Mauconduit, A. Vignaud, and **P. Ciuciu**, “3D SPARKLING for accelerated ex vivo  $T_2^*$ -weighted MRI with compressed sensing,” in *27th Proc. ISMRM*, Montreal, QC, Canada, May 2019, number 426.
- [20] J.-M. Lin and **P. Ciuciu**, “Minimum-variance weighted image reconstruction and the application to MRI,” in *26th Proc. ISMRM*, Paris, France, June 2018.
- [21] L. El Gueddari, C. Lazarus, H. Carrié, A. Vignaud, and **P. Ciuciu**, “Self-calibrating nonlinear MR image reconstruction algorithms for variable density sampling and parallel reception MRI,” in *26th Proc. ISMRM*, Paris, France, June 2018.
- [22] C. Lazarus, P. Weiss, L. El Gueddari, F. Mauconduit, A. Vignaud, and **P. Ciuciu**, “Distribution-controlled and optimally spread non-Cartesian sampling curves for accelerated in vivo brain imaging at 7 Tesla,” in *26th Proc. ISMRM*, Paris, France, June 2018.
- [23] H. Carrié, L. El Gueddari, H. Cherkaoui, E. Dohmatob, L. Leroi, and **P. Ciuciu**, “Multi-contrast dictionary learning for 2D compressed sensing MRI reconstruction,” in *15th Proc. Proc. IEEE ISBI*, Washington, DC USA, Apr. 2018.
- [24] L. El Gueddari, C. Lazarus, H. Carrié, A. Vignaud, and P. Ciuciu, “Self-calibrating nonlinear MR image reconstruction algorithms for variable density sampling and parallel reception MRI,” in *15th Proc. Proc. IEEE ISBI*, Washington, DC USA, Apr. 2018.
- [25] A. Frau-Pascual, T. Perret, S. Bougacha, F. Forbes, and **P. Ciuciu**, “Advanced statistical analysis of functional Arterial Spin Labelling data,” in *23rd Proc. HBM*, Vancouver, Canada, June 2017.
- [26] C. Lazarus, P. Weiss, N. Chauffert, F. Mauconduit, M. Bottlaender, A. Vignaud, and **P. Ciuciu**, “SPARKLING: Novel non-Cartesian sampling schemes for accelerated 2D anatomical imaging at 7T using Compressed Sensing,” in *25th Proc. ISMRM*, Honolulu, Hawaii (USA), Apr. 2017.

- [27] A. Coste, N. Chauffert, F. Boumezbeur, A. Vignaud, **P. Ciuciu**, G. Madelin, K. Reetz, D. Le Bihan, C. Lerman, and S. Romanzetti, “Improving sodium concentration measurements using sub-sampled non-cartesian trajectories and non-linear iterative reconstruction algorithm,” in *25th Proc. ISMRM*, Honolulu, Hawaii (USA), Apr. 2017.
- [28] D. La Rocca, D. A. Engemann, V. van Wassenhove, and **P. Ciuciu**, “Correlates of perceptual learning in MEG functional connectivity analysis,” in *BrainModes 2016*, Brussels, Belgium, Dec. 2016.
- [29] C. Lazarus, A. Coste, N. Chauffert, A. Vignaud, and **P. Ciuciu**, “Compressed sensing in MRI: how the maximum undersampling factor depends on the image size,” in *33th Proc. ESMRMB*, Vienna, Austria, Oct. 2016.
- [30] C. Lazarus, A. Coste, N. Chauffert, A. Vignaud, and **P. Ciuciu**, “Compressed sensing in MRI: how the maximum undersampling factor depends on the image size and the SNR,” in *SFB Workshop: Imaging with modulated/incomplete data*, Graz, Austria, Sep. 2016.
- [31] **P. Ciuciu**, H. Pellé, M. Rahim, E. Dohmatob, P. Abry, and V. van Wassenhove, “Multivariate Hurst exponent estimation in fMRI. Application to brain decoding of perceptual learning,” in *22nd Proc. HBM*, Geneva, Switzerland, June 2016.
- [32] A. Coste, N. Chauffert, A. Vignaud, **P. Ciuciu**, F. Boumezbeur, P. Weiss, S. Romanzetti, D. Le Bihan, and C. Lerman, “Assessment of benefit to use a non-cartesian trajectory and nonlinear reconstruction method compared to a cartesian strategy for fast  $^{31}\text{P}$  MRI,” in *24th Proc. ISMRM*, Singapore, May 2016.
- [33] A. Coste, A. Vignaud, **P. Ciuciu**, F. Boumezbeur, A. Amadon, F. Mauconduit, S. Romanzetti, D. Le Bihan, and C. Lerman, “ $^{31}\text{P}$  MR imaging and concentration measurements,” in *24th Proc. ISMRM*, Singapore, May 2016.
- [34] A. Coste, N. Chauffert, A. Vignaud, F. Boumezbeur, **P. Ciuciu**, P. Weiss, S. Romanzetti, D. Le Bihan, and C. Lerman, “ $^{31}\text{P}$  MRI: Comparison of image reconstruction approaches for sub-Nyquist acquisitions at ultra high field,” in *32th Proc. ESMRMB*, Edinburgh, UK, Oct. 2015.
- [35] R. Becker, **P. Ciuciu**, V. van Wassenhove, D. Van de Ville, and A. Kleinschmidt, “Alpha oscillations modulate  $1/f$  slope of slow spontaneous brain activity,” in *21th Proc. HBM*, Honolulu, USA, June 2015.
- [36] **P. Ciuciu**, P. Abry, and B. J. He, “Interplay between scale-free dynamics and functional connectivity in intrinsic fMRI networks,” in *BrainModes 2013 Symposium*, Amsterdam, The Netherlands, Dec. 2013, Elsevier.
- [37] S. Badillo, T. Vincent, G. Dehaene-Lambertz, and **P. Ciuciu**, “The contribution of the multisession joint detection-estimation model to language processing studies,” in *19th Proc. HBM*, Seattle, USA, June 2013, Elsevier.

- [38] P. Abry, N. Zilber, A. Gramfort, V. van Wassenhove, and **P. Ciuciu**, “Beyond oscillations: Are scale-free dynamics of magnetoencephalography (MEG) signals markers of neural plasticity?,” in *SFN 2012*, New Orleans, USA, Oct. 2012, (oral).
- [39] N. Zilber, **P. Ciuciu**, A. Gramfort, and V. van Wassenhove, “Acoustic textures and visual motion act in concert: metamodal plasticity observed with MEG,” in *SFN 2012*, New Orleans, USA, Oct. 2012.
- [40] **P. Ciuciu**, P. Abry, and B. J. He, “Interplay between scale-free dynamics and functional connectivity in intrinsic fMRI networks,” in *SFN 2012*, New Orleans, USA, Oct. 2012.
- [41] N. Zilber, **P. Ciuciu**, P. Abry, and V. van Wassenhove, “Scale-free properties of (MEG) brain signals capture plasticity,” in *18th Proc. Biomag*, Paris, France, Aug. 2012.
- [42] N. Zilber, **P. Ciuciu**, A. Gramfort, and V. van Wassenhove, “Acoustic textures improve motion discrimination: Indexing metamodal plasticity with MEG,” in *18th Proc. Biomag*, Paris, France, Aug. 2012.
- [43] T. Vincent, L. Chaari, C. Bakhous, S. Badillo, and **P. Ciuciu**, “Pyhrf: hemodynamics-centered fMRI data analyses,” in *Medical Analysis Workshop, 9th Proc. ISBI*, Barcelona, Spain, 2012, (oral).
- [44] L. Risser, T. Vincent, F. Forbes, J. Idier, and **P. Ciuciu**, “How to deal with brain deactivations in the joint detection-estimation framework?,” in *16th Proc. HBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010, Elsevier.
- [45] L. Chaari, S. Mériaux, J.-C. Pesquet, and **P. Ciuciu**, “Impact of the parallel imaging reconstruction algorithm on the statistical sensitivity in fMRI,” in *16th Proc. HBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010.
- [46] S. Badillo, S. Desmidt, and **P. Ciuciu**, “A group level fMRI comparative study between 12 and 32 channel coils at 3 Tesla,” in *16th Proc. HBM*, D. Le Bihan, Ed., Barcelona, Espania, June 2010, Elsevier.
- [47] T. Vincent, A. Tucholka, and **P. Ciuciu**, “Surface-based joint detection-estimation of brain activity in functional MRI,” in *16th Proc. HBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010, Elsevier, (oral).
- [48] **P. Ciuciu**, S. Desmidt, T. Vincent, S. Roger, B. Thirion, and A. Roche, “What is the statistical difference between SPM5 and the BrainVISA fMRI toolbox?,” in *16th Proc. HBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010, Elsevier.
- [49] L. Favre, A.-L. Fouque, T. Vincent, A. Tucholka, M. Keller, G. Operto, B. Thyreau, C. Clouchoux, L. Risser, A. Moreno, D. Geffroy, Y. Cointepas, O. Coulon, **P. Ciuciu**, B. Thirion, and A. Roche, “A comprehensive fMRI processing toolbox for brainvisa,” in *15th Proc. HBM*, San Francisco, CA, USA, June 2009.

- [50] T. Vincent, L. Risser, J. Idier, and **P. Ciuciu**, “Spatially adaptive mixture modelling for analysis of fMRI time series,” in *15th Proc. HBM*, San Francisco, CA, USA, June 2009.
- [51] L. Chaari, **P. Ciuciu**, A. Benazza-Benyahia, and J.-C. Pesquet, “Performance of three parallel MRI reconstruction methods in the presence of coil sensitivity map errors,” in *17th Proc. ISMRM*, Honolulu, USA, Apr. 2009.
- [52] L. Risser, **P. Ciuciu**, T. Aso, and D. Le Bihan, “Brain activation detection using diffusion weighted MRI and BOLD MRI: a comparative study,” in *MICCAI Workshop on Computational Diffusion MRI*, New York, Sep. 2008.
- [53] C. Rabrait, **P. Ciuciu**, A. Ribès, C. Poupon, G. Dehaene-Lambertz, P. Leroux, D. Le Bihan, and F. Lethimonnier, “Regularized localized parallel EVI: application to the study of habituation effects in fMRI,” in *16th Proc. ISMRM*, Toronto, Canada, May 2008.
- [54] C. Rabrait, **P. Ciuciu**, A. Ribès, C. Poupon, P. Leroux, D. Le Bihan, and F. Lethimonnier, “Localized parallel echo volume imaging at 1.5T: a first extensive fMRI study,” in *15th Proc. ISMRM*, May 2007, (oral).
- [55] T. Vincent, **P. Ciuciu**, and J. Idier, “Whole brain validation of spatial mixture modelling for the joint detection-estimation of brain activity in fMRI,” in *13th Proc. HBM*, Chicago, IL, June10–14 2007.
- [56] **P. Ciuciu**, P. Abry, and C. Rabrait, “Leader-based multifractal analysis of EVI fMRI time series: evidence of scaling phenomena in a language comprehension study,” in *13th Proc. HBM*, Chicago, IL, June10–14 2007.
- [57] C. Rabrait, **P. Ciuciu**, C. Poupon, D. Le Bihan, and F. Lethimonnier, “Temporal analysis of the BOLD response using high temporal resolution Echo Volumar Imaging,” in *14th Proc. ISMRM*, May 2006, (oral).
- [58] **P. Ciuciu**, J. Idier, and S. Sockeel, “Modeling non-linear and non-stationary effects of the BOLD response using mixture models in fMRI,” in *12th Proc. HBM*, Florence, Italy, June 11-15 2006.
- [59] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, “Anatomically informed joint detection-estimation of brain activity,” in *12th Proc. HBM*, Florence, Italy, June 11-15 2006.
- [60] A. Botzung, **P. Ciuciu**, E. Denkova, and L. Manning, “The neural bases of the constructive nature of autobiographical memories studied with a self-paced fMRI design,” in *12th Proc. HBM*, Florence, Italy, June 2006.
- [61] S. Makni, Ch. Grova, **P. Ciuciu**, and J.-B. Poline, “An interpolation method for fMRI data extraction on the cortical surface,” in *11th Proc. HBM*, Toronto, Canada, June 2005.

- [62] **Ciuciu, P.**, Ch. Pallier, B. Thirion, , S. Mériaux, G. Dehaene-Lambertz, and S. Dehaene, “Hemodynamic response estimation in auditory sentence repetition,” in *11th Proc. HBM*, Toronto, Canada, June 2005.
- [63] S. Donnet, M. Lavielle, **Ciuciu, P.**, and J.-B. Poline, “BOLD single-trial variability and model selection,” in *10th Proc. HBM*, Budapest, Hungary, June 2004.
- [64] S. Makni, **Ciuciu, P.**, J. Idier, and J.-B. Poline, “A region-based method for the estimation of the neural impulse response in event-related fMRI,” in *10th Proc. HBM*, Budapest, Hungary, June 2004.
- [65] **Ciuciu, P.**, J. Idier, A. Roche, G. Flandin, G. Marrelec, and J.-B. Poline, “On the spatial variability of the BOLD HRF and some regularization strategies,” in *9th Proc. HBM*, New York, USA, June 2003.
- [66] **P. Ciuciu**, J. Marrelec, G. and Idier, J.-B. Poline, and H. Benali, “A general tool to estimate the hemodynamic response function in fMRI data,” in *8th Proc. HBM*, Sendai, Japan, June 2002.

## 9 Invited talks and seminars (since 2002)

- [1] **P. Ciuciu** and Z. Saghi, “Compressed Sensing for Imaging,” MINATEC/CEA Grenoble, France, Nov. 2021, CEA: Key note of the Transverse Working Program on Numerical Simulation and AI.
- [2] **P. Ciuciu**, “Accelerated non-Cartesian MR imaging: From shorter data acquisition to faster image reconstruction,” Aalto University, Finland, Nov. 2021, ABC Seminar: Human brain imaging.
- [3] **P. Ciuciu**, “Functional Connectivity in the Infra-slow Human Brain Activity in MEG,” Helsinki, Finland, Nov. 2021, Neuroscience Center (HiLIFE, University of Helsinki).
- [4] **P. Ciuciu**, “Accelerated MR imaging: from shorter data acquisition to faster image reconstruction,” La Timone Hospital, Marseille, France, Oct. 2021, French Ultra-high field Network.
- [5] **P. Ciuciu**, “Accelerated MR imaging: from shorter data acquisition to faster image reconstruction,” Marseille (virtual), France, Jan. 2021, Aix-Marseille Université.
- [6] **P. Ciuciu**, “Accelerated MR imaging: from shorter data acquisition to faster image reconstruction,” Gif-sur-Yvette (virtual), France, Dec. 2020, CEA/NeuroSpin seminars.
- [7] **P. Ciuciu**, “Online MR image reconstruction for compressed sensing acquisition in  $T_2^*$  imaging,” Gif-sur-Yvette (virtual), France, Oct. 2020, L2S– CNRS– Supélec – Université Paris-Saclay.
- [8] **P. Ciuciu**, “Emergence of  $\beta$  and  $\gamma$  networks following multisensory training,” Helsinki, Finland, Feb. 2020, Neuroscience Center, University of Helsinki.



- [9] **P. Ciuciu**, “SPARKLING: variable-density k-space filling curves for accelerated  $T_2^*$ -weighted MRI,” Sophia-Antipolis, France, Oct. 2019, Inria Sophia-Antipolis, Université Côte d’Azur.
- [10] **P. Ciuciu**, “Online MR image reconstruction for compressed sensing acquisition in  $T_2^*$  imaging,” Sophia-Antipolis, France, Oct. 2019, I3S – CNRS.
- [11] **P. Ciuciu**, “Online MR image reconstruction for compressed sensing acquisition in  $T_2^*$  imaging,” San Diego, CA, USA, Aug. 2019, SPIE in Optics & Photonics: workshop on Wavelets and Sparsity XVIII. Special session on « Inverse problems in MRI ».
- [12] **P. Ciuciu**, “Apprentissage profond pour la reconstruction d’images IRM acquises sous forme comprimée,” Paris, France, Apr. 2019, Collège de France.
- [13] **P. Ciuciu**, “SPARKLING: variable-density k-space filling curves for accelerated  $T_2^*$ -weighted MRI,” Geneva, Switzerland, Feb. 2019, Geneva University Hospital.
- [14] **P. Ciuciu**, “SPARKLING: variable-density k-space filling curves for accelerated  $T_2^*$ -weighted MRI,” Edinburgh, UK, Nov. 2018, Heriot-Watt University, School of Engineering and Physical Sciences.
- [15] **P. Ciuciu**, “Distribution-controlled and optimally spread sampling trajectories for accelerated Magnetic Resonance Imaging,” Cachan, France, May 2018, 8th International Conference on New Computational Methods for Inverse Problems.
- [16] **P. Ciuciu**, “Statistical modeling and Bayesian inference of functional ASL data,” Paris, France, Mar. 2018, St Anne Hospital & INSERM Centre Psychiatrie et Neurosciences, IMABRAIN meeting.
- [17] **P. Ciuciu**, “Multifractal Analysis of Neural Activity in MEG reveals Convergence to a Learning-predictive Cortical Regime,” Montreal, QU, Canada, Dec. 2017, Perform Centre, Concordia University.
- [18] **P. Ciuciu**, “Prospective SPARKLING trajectories for accelerated 2D high resolution MRI at 7 Tesla,” Montreal, QU, Canada, Dec. 2017, École Polytechnique de Montreal.
- [19] **P. Ciuciu**, “Prospective SPARse K-space sampLING (SPARKLING) for accelerated 2D anatomical imaging at 7 Tesla,” Nice, France, Sep. 2017, Manifold learning workshop, H2020 Dedale workshop.
- [20] **P. Ciuciu**, “Multifractal Analysis of Neural Activity (MEG) Reveals Convergence to an Optimal Cortical Regime That Predicts Learning,” Laufer Center Lecture Hall, Stony Brook, NY, USA, May 2017, Univ. of Stony Brook.
- [21] **P. Ciuciu**, “Convergence of Neural Activity (MEG) to Asymptotic Multifractal Dynamics in MEG Predicts Learning,” Langone Health center, NYC, USA, May 2017, NYU, School of Medicine.
- [22] **P. Ciuciu**, “Sparkling: Novel non-Cartesian sampling schemes for accelerated 2D anatomical imaging at 7 Tesla,” Vancouver, Canada, Dec. 2016, IEEE lecture, Univ. British Columbia.

- [23] **P. Ciuciu**, “Convergence of neural activity to multifractal attractors in MEG predicts learning,” Avignon, France, Sep. 2016, GDR of Multifractal Analysis.
- [24] **P. Ciuciu**, “Impact of perceptual learning on resting-state fMRI connectivity: A supervised classification study,” Budapest, Hungary, Aug. 2016, EUSIPCO conference: Special session on unraveling brain networks from functional neuroimaging data.
- [25] **P. Ciuciu**, “Compressive sensing for MRI,” Rennes, France, 21 June 2016, INRIA Bretagne Atlantique.
- [26] **P. Ciuciu**, “New physically plausible compressive sampling schemes for MRI: First results at 7 tesla,” Valbonne, France, 17 June 2016, INRIA Sophia-Antipolis.
- [27] **P. Ciuciu**, “Convergence to asymptotic multifractal dynamics in MEG predicts learning,” Geneva, Switzerland, 3 May 2016, University of Geneva - Campus BioTech.
- [28] **P. Ciuciu**, “On the generation of physically plausible  $k$ -space trajectories: from simulations to real acquisitions,” Palaiseau, France, 23 Mar. 2016, CEA visiting committee on High Performance Computing.
- [29] **P. Ciuciu**, “Compressed sensing for high resolution MRI at 7 Tesla,” Grenoble, France, 8 Feb. 2016, GIN INSERM.
- [30] **P. Ciuciu**, “Compressed sensing for high resolution MRI at 7 Tesla,” Gif-sur-Yvette, France, 5 Feb. 2016, Workshop on the 7 Tesla magnet, NeuroSpin.
- [31] **P. Ciuciu**, “On the generation of compressed sampling schemes in MRI,” Gif-sur-Yvette, France, 28 Jan. 2016, Cosmostat lab, IRFU/CEA.
- [32] **P. Ciuciu**, “Complexity measures in brain activity: The functional role of scale-free brain dynamics,” Jean-Kuntzmann lab., Grenoble, France, 8 Dec. 2015, IXXI Rhône-Alpes.
- [33] **P. Ciuciu**, “Convergence to asymptotic multifractal dynamics predicts learning,” Paris, France, 13 Mar. 2015, European Institute of Theoretical Neuroscience.
- [34] **P. Ciuciu**, A. Frau-Pascual, Th. Vincent, and F. Forbes, “Physiologically informed Bayesian analysis of ASL fMRI data,” GIPSA Lab, Grenoble, France, 5 Dec. 2014, Workshop on challenges in multimodality, CHES ERC project.
- [35] **P. Ciuciu**, “Joint detection-estimation of brain activity in fMRI,” Toulouse, France, 14 Nov. 2014, Atelier restauration d’images CNES.
- [36] **P. Ciuciu** and S. Badillo, “Multi-subject Bayesian joint detection and estimation in fMRI,” University of Warwick, Coventry, UK, 5 Sep. 2014, NeuroStats workshop.

- [37] **P. Ciuciu**, N. Chauffert, and P. Weiss, “An accelerated proximal gradient algorithm for gradient waveforms design in Magnetic Resonance Imaging,” University of Bristol, UK, 28 Aug. 2014, Workshop on High-dimensional Stochastic Simulation and Optimisation in Image Processing.
- [38] **P. Ciuciu**, “Scaling phenomena in brain activity: review, evidences, analysis and impact,” Banff, AL, Canada, 27 Feb. 2014, BIRS workshop: Multifractal Analysis: From Theory to Applications and Back.
- [39] **P. Ciuciu**, P. Abry N. Zilber, and V. van Wassenhove, “Convergence to asymptotic multifractal dynamics predicts learning,” Montreal, QB, Canada, 25 Oct. 2013, CRM, Univ. of Montreal. Scale-free dynamics & Functional Connectivity workshop.
- [40] **P. Ciuciu**, N. Chauffert, and P. Weiss, “Physically plausible compressed sensing schemes for MRI,” Lausanne, Suisse, 2 July 2013, École Polytechnique Fédérale de Lausanne.
- [41] **P. Ciuciu**, “VEM vs. MCMC inference for the joint detection estimation of brain activity in fMRI,” Toulouse, France, 24-28 June 2013, CIMI LabEx International workshop, université Paul Sabatier.
- [42] **P. Ciuciu**, “Compressed sensing in MRI,” Toulouse, France, 28 Jan. 2013, Séminaire du Centre International de Mathématique et d’Informatique de Toulouse, université Paul Sabatier.
- [43] **P. Ciuciu**, “MRI: from acquisition to reconstruction,” Toulouse, France, 14 Jan. 2013, Séminaire du Centre International de Mathématique et d’Informatique de Toulouse, université Paul Sabatier.
- [44] **P. Ciuciu**, “Modulation of scale-free properties of brain activity in MEG,” Paris, France, 28 Aug. 2012, 18ième congrès international Biomag.
- [45] **P. Ciuciu**, “Scale-free and multifractal time dynamics of fMRI signals during rest and task,” Gif-sur-Yvette, France, 15 June 2012, UNICOG INSERM/CEA U992 meeting, NeuroSpin.
- [46] **P. Ciuciu**, “Scale-free and multifractal time dynamics in the brain,” Créteil, France, 1er June 2012, SCAM, universités Paris XII & Paris-Est.
- [47] **P. Ciuciu**, “A VEM solution to the joint detection estimation of brain activity in fMRI,” Toulouse, France, Feb. 2012, Séminaire image IMT, université Paul Sabatier.
- [48] **P. Ciuciu**, “Multifractal properties of the fMRI signal during rest and task,” Bethesda, 20 Sep. 2011, NIH/NINDS/LFMI meeting.
- [49] **P. Ciuciu**, “Multifractal analysis of resting state networks in functional MRI,” Chicago, IL, USA, Mar. 2011, IEEE ISBI conference: special session on “Wavelets in EEG/fMRI”.
- [50] **P. Ciuciu**, “Image reconstruction from multiple sensors using Stein’s principle. Application to parallel MRI,” Chicago, IL, USA, Mar. 2011, IEEE ISBI conference: special session on “Wavelets in EEG/fMRI”.

- [51] **P. Ciuciu**, “Multifractal analysis of resting state networks in functional MRI,” Grenoble, France, Apr. 2011, GIPSA lab (CNRS).
- [52] **P. Ciuciu**, “Impact of the joint detection-estimation approach on group level analyses in fMRI,” Strasbourg, France, Nov. 2010, Université Louis Pasteur.
- [53] **P. Ciuciu**, “Impact of the parallel mri reconstruction algorithm on brain activity detection in fMRI,” Roma, France, Nov. 2010, IEEE ISABEL workshop.
- [54] **P. Ciuciu**, “Post-modern fMRI data analysis in parallel imaging,” Gif-sur-Yvette, France, 13 Sep. 2010, Séminaire NeuroSpin/CEA.
- [55] **P. Ciuciu**, “Bayesian joint detection estimation of brain activity in fMRI,” Sophia-Antipolis, France, 16 Dec. 2009, INRIA Sophia-Antipolis, équipe Asclepios.
- [56] **P. Ciuciu**, “Bayesian joint detection estimation of brain activity in fMRI,” Grenoble, France, 26 Nov. 2009, Séminaire de statistiques du laboratoire Jean Kuntzmann, INRIA Grenoble &, université Joseph Fourier.
- [57] **P. Ciuciu**, “Bayesian joint detection estimation of brain activity in fMRI,” Palaiseau, France, 24 Nov. 2009, CMAP, École Polytechnique.
- [58] **P. Ciuciu**, “Spatially adaptive mixture models for analysis of fmri time series,” Paris, France, Oct. 2009, GDR CNRS Stats-Santé, université Paris V.
- [59] **P. Ciuciu**, L. Chaari, and J.-C. Pesquet, “Unsupervised wavelet-based regularization in parallel MRI,” Porquerolles, France, 9 June 2009, OPTIMED (ANR project) closing workshop.
- [60] **P. Ciuciu**, “Extrapolation schemes for fast 3D Potts field partition function estimation. Application to fMRI image analysis,” Paris, France, 26 Mar. 2009, GDR CNRS ISIS, Télécom Paris-Tech.
- [61] **P. Ciuciu**, “Bayesian analysis of event-related fMRI data,” Oxford, United Kingdom, Sep. 2008, fMRIB, John Radcliffe hospital, Oxford university.
- [62] **P. Ciuciu**, P. Abry, and C. Rabrait, “Probing complexity in brain dynamics- a wavelet-based multifractal approach,” Montreal, Canada, June 2008, École Polytechnique de Montreal.
- [63] **P. Ciuciu**, “Bayesian contributions to the analysis of brain activity from fMRI data,” Montreal, Canada, June 2008, MITACS workshop on Signal Processing Methods in Brain Imaging.
- [64] **P. Ciuciu**, “Bayesian contributions to the joint detection-estimation of brain activity in fMRI,” Orsay, France, 17 Apr. 2008, INRIA Saclay, Select team.
- [65] **P. Ciuciu**, “Within-subject analysis of fMRI data analysis: advanced bold signal models,” Strasbourg, France, 5 Aug. 2005, Centre d’Études de Physiologie Appliquée, Unité CNRS UPS 858.

- [66] **P. Ciuciu** and J.-B. Poline, “Estimation de la fonction de réponse hémodynamique en IRM fonctionnelle,” Paris, France, June 2002, GdR ISIS.
- [67] **P. Ciuciu** and J.-B. Poline, “Haemodynamic response function estimation for any fMRI experiment,” London, United Kingdom, May 2002, Wellcome Department of Imaging NeuroScience.

## 10 Keynotes, tutorials and educational courses (since 2003)

- [1] **P. Ciuciu**, “New Trends in Acquisition and Reconstruction for Compressed Sensing MRI,” St Jacut de la Mer, France, June 2022, 14th IEEE EMBS Summer School on Biomedical Imaging.
- [2] **P. Ciuciu**, “Recent advances in acquisition and reconstruction for Compressed Sensing MRI ,” Venice, Italy, Apr. 2019, Tutorial at the 16th IEEE International Symposium on Biomedical Imaging.
- [3] **P. Ciuciu**, “MRI reconstruction,” Strasbourg, France, Nov. 2016, IEEE NSSC & MIC conference.
- [4] **P. Ciuciu**, “Functional MRI: physiology, modeling, Bayesian inference and neurosciences,” Saint-Lary Soulan, France, 10-14 June 2013, école d’été du Centre International de Mathématique et d’Informatique de Toulouse, université Paul Sabatier, Toulouse.
- [5] **P. Ciuciu**, “Inverse problems in functional brain imaging,” Porquerolles, France, 6-10 May 2010, école de printemps CNRS GdR ISIS, Problèmes inverses en traitement des signaux et des images.
- [6] **P. Ciuciu**, “Inverse problems in functional brain imaging,” Peyresq, France, July 2009, 4ème école d’été CNRS GdR ISIS, Problèmes inverses en traitement des signaux et des images.
- [7] **P. Ciuciu**, “Identification of the hemodynamic response in fMRI Part II: regionwise joint-detection estimation,” Marseille, France, 26 May 2009, JIRFNI’09 (INSERM).
- [8] **P. Ciuciu**, “Identification of the hemodynamic response in fMRI Part I: voxelwise approaches,” Marseille, France, 26 May 2009, JIRFNI’09 (INSERM).
- [9] **P. Ciuciu** and T. Vincent, “Joint detection-estimation of brain activity from fMRI time series: the PyHRF package,” Télécom Paris-Tech, France, 18 Nov. 2008, JIRFNI’08 (INSERM).
- [10] **P. Ciuciu** and G. Marrelec, “Estimation and characterization of the hemodynamic response in fMRI,” Paris, France, 11 Sep. 2006, EEG/fMRI (CNRS/INSERM) summer school.
- [11] **P. Ciuciu**, “Modeling the BOLD response in fMRI,” in *MICCAI’04, Tutorials*, Saint-Malo, France, Sep. 2004.
- [12] **P. Ciuciu**, “Modélisation de la réponse hémodynamique en IRMf,” Marseille, France, 22-26 Nov. 2004, Journée de formation inter-régionale en neuroimagerie (INSERM).

- [13] **P. Ciuciu**, “Modélisation linéaire du signal BOLD,” Paris, France, 22 Sep. 2003, Journée d’analyse de données de neuroimagerie.
- [14] **P. Ciuciu**, “Analyse statistique des données d’IRMf,” Concarneau, France, Aug. 2003, École d’été (CNRS) Temps et Cerveau.

## 11 Patents (since 2011)

- [1] G R Chaithya, G. Daval-Frérôt, A. Vignaud, and **P. Ciuciu**, “Method and apparatus for performing accelerated Magnetic Resonance Imaging with reduced off-resonance effect,” Apr. 2022, Patent Application: Europe N° 22305592.2.
- [2] G. Daval-Frérôt, A. Massire, M. Ripart, B. Mailhe, M. Nadar, A. Vignaud, and **P. Ciuciu**, “B0 field inhomogeneity estimation using internal phase maps from long single echo time MRI acquisition,” Apr. 2021, Patent Application: US 17/245,993.
- [3] **P. Ciuciu**, C. Lazarus, P. Weiss, N. Chauffert, A. Vignaud, and J. Kahn, “Method and apparatus for accelerated Magnetic Resonance Imaging,” Sep. 2017, Patent Application: Europe N° 17306151.6.
- [4] L. Chaari, **P. Ciuciu**, J.-C. Pesquet, and S. Mériaux, “Method for performing parallel magnetic resonance imaging,” Mar. 2012, PCT/IB2011/002330.

## 12 Research Contract Report (since 2008)

- [1] **P. Ciuciu** and F. Boumezbeur, “Effect of S 47445 on Default Mode Network functional connectivity assessed by a functional magnetic resonance imaging (fMRI) in resting state and during cognitive task. a double-blind, placebo-controlled cross-over randomised study in elderly healthy female volunteers.,” Rapport de contrat (confidentiel), Institut de Recherches Internationales SERVIER, CEA.DSV.I<sup>2</sup>BM.NeuroSpin, July 2015.
- [2] **P. Ciuciu** and F. Boumezbeur, “Effect of S 47445 on Default Mode Network functional connectivity assessed by a functional magnetic resonance imaging (fMRI) in resting state and during cognitive task,” Plan d’analyse statistique (confidentiel), Institut de Recherches Internationales SERVIER, CEA.DSV.I<sup>2</sup>BM.NeuroSpin, July 2013.
- [3] **P. Ciuciu**, T. Vincent, and S. Desmidt, “Effect of S 38093 on regional brain activity assessed by a functional magnetic resonance imaging (fMRI) during cognitive tasks. a double-blind, placebo-controlled cross-over randomised study in elderly healthy male volunteers,” Rapport de contrat (confidentiel), Institut de Recherches Internationales SERVIER, CEA.DSV.I<sup>2</sup>BM.NeuroSpin, Mar. 2012.

- [4] **P. Ciuciu** and A. Roche, “Effect of S 38093 on regional brain activity assessed by a functional magnetic resonance imaging (fMRI) during cognitive tasks. a double-blind, placebo-controlled cross-over randomised study in elderly healthy male volunteers,” Plan d’analyse statistique (confidentiel), Institut de Recherches Internationales SERVIER, CEA.DSV.I<sup>2</sup>BM.NeuroSpin, Apr. 2010.

### 13 Monographies (since 1996)

- [1] **P. Ciuciu**, *Titres et travaux pour le concours E5 du CEA*, Concours directeur de recherches, CEA.DSV, Fontenay aux Roses, France, January 2014.
- [2] **P. Ciuciu**, *Dynamique cérébrale en neuro-imagerie fonctionnelle*, Habilitation à diriger les recherches, Université de Paris–Sud, Orsay, France, 2008.
- [3] **P. Ciuciu**, *Méthodes markoviennes en estimation spectrale non paramétrique. Applications en imagerie radar Doppler*, Thèse de doctorat, Université de Paris–Sud, Orsay, France, October 2000.
- [4] **P. Ciuciu**, “Régularisation markovienne pour l’analyse spectrale non paramétrique. Application aux signaux de radars Doppler,” Mémoire de DEA Automatique et Traitement du Signal, Université de Paris–Sud, Gif-sur-Yvette, France, June 1996.