Publication List

February 27, 2023

1 Peer-reviewed journal articles

[1] Chaithya G R and **P. Ciuciu**, "Jointly learning non-cartesian k-space trajectories and reconstruction networks for 2D and 3D MR imaging through projection," *BioEngineering*, vol. 10, no. 2, pp. 158, Feb. 2023.

[2] Z. Ramzi, K. Michalewicz, J.-L. Starck, T. Moreau, and **P. Ciuciu**, "Wavelets in the deep learning era," *Journal of Mathematical Imaging and Vision*, vol. 65, no. 1, pp. 140–151, Jan. 2023.

[3] G. Daval-Frérot, B. Massire, A. Mailhe, M. Nadar, A. Vignaud, and **P. Ciuciu**, "Iterative ΔB_0 field map estimation for off-resonance correction in non-Cartesian susceptibility weighted imaging," *Magnetic Resonance in Medicine*, vol. 88, pp. 1592–1607, 2022.

[4] 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*, vol. 41, no. 8, pp. 2105–2117, Aug. 2022.

[5] 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*, vol. 41, no. 7, pp. 1625–1638, July 2022.

[6] 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.

[7] 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. Karkalousos, 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.

[8] 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.

[9] 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*.

[10] 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.

[11] 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.

[12] 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.

[13] 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.

[14] D. La Rocca, **P. Ciuciu**, D. Engemann, and V. van Wassenhove, "Emergence of β and γ networks following multisensory training," *Neuroimage*, vol. 206, pp. Article 116313, Feb, 1 2020.

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[16] Patryk Filipiak, Rutger Fick, Mathieu Petiet, Alexandra Santin, Anne-Charlotte Philippe, Stéphane Lehéricy, **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.

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[21] 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.

[22] N. Chauffert, **Ciuciu, P.**, J. Kahn, and P. Weiss, "A projection method on measures sets," *Constructive Approximation*, vol. 45, no. 1, pp. 83–111, 2017.

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2 Manuscripts under review (2023)

[1] M. Dumeur, S. H. Wang, **P. Ciuciu**, and M. Palva, "Multifractality in the Landau–Ginzburg theory of cortex dynamics," *submitted to Physical Review Letters*, CEA/NeuroSpin, Inria-CEA MIND and Aalto University, Helsinki, Finland, Feb. 2023.

[2] G. Daval-Frérot, A. Massire, B. Mailhe, B. Nadar, M. Bapst, A. Luciani, A. Vignaud, and **P. Ciuciu**, "Deep learning-assisted model-based off-resonance correction for non-Cartesian susceptility weighted imaging," *under review* at *Magnetic Resonance in Medicine*, CEA/NeuroSpin & Inria-CEA MIND and Siemens Heathineers SAS, Saclay, France, Feb. 2023.

[3] Chaithya G R, G. Daval-Frérot, A. Massire, A. Vignaud, and **P. Ciuciu**, "Improving SPARKLING trajectories through Minimized Off-Resonance Effects and Gridding of Low Frequencies," *under review Magnetic Resonance in Medicine*, CEA/NeuroSpin & Inria-CEA MIND, Saclay, France, Feb. 2023.

[4] Z. Amor, Chaithya G R, B. Daval-Frérot, G. Thirion, F. Mauconduit, **P. Ciuciu**, and A. Vignaud, "Non-Cartesian 3D-SPARKLING vs Cartesian 3D-EPI encoding schemes for functional Magnetic Resonance Imaging at 7 Tesla," *submitted to Plos One*, CEA/NeuroSpin, Inria-CEA MIND and Siemens Heathineers SAS, Saclay, France, Jan. 2023.

[5] G. Biagi, **P. Ciuciu**, and Z. Saghi, "Learning based image reconstruction for electron tomography under limited data acquisition conditions," *submitted to Ultramicroscopy*, CEA Grenoble and CEA/NeuroSpin, & Inria-CEA MIND, Grenoble, France, Feb. 2023.

3 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.

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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.

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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.

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

[1] P.-A. Comby, Z. Amor, A. Vignaud, and **P. Ciuciu**, "Denoising of fMRI volumes using local low rank methods," *submitted to* 20th IEEE International Symposium on Biomedical Imaging (ISBI), CEA/NeuroSpin, Inria-CEA MIND, Saclay, France, Nov. 2022.

[2] S. Farrens, A. Grigis, Z. El Gueddari, L. Ramzi, Chaithya G R, S. Starck, **P. Ciuciu**, and J.-L. Starck, "PySAP: From Galaxies to Brains and Beyond," in *Astronomical Society of the Pacific Conference Series*, July 2022, vol. 532, p. 77.

[3] 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, (oral presentation).

[4] Kumari Pooja, Chaithya G R, 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.

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[8] Z. Ramzi, B. Remy, F. Lanusse, J.-L. 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, (oral presentation).

[9] 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.

[10] 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.

[11] 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.

[12] 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.

[13] 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, (oral presentation).

[14] 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.

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[19] **P. Ciuciu**, J. Idier, and J.-F. Giovannelli, "Analyse spectrale non paramétrique haute résolution," in *Actes du 17e 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 16e colloque GRETSI*, Grenoble, France, Sep. 1997, pp. 695–698.

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

[1] Chaithya G R, G. Daval-Frérot, A. Massire, A. Vignaud, and **P. Ciuciu**, "Merging Cartesian and non-Cartesian sampling through GoLF-SPARKLING," *submitted to* 31th annual ISMRM meeting, CEA/NeuroSpin, Inria-CEA MIND, Saclay, France, Nov. 2022, Abstract 2910.

[2] G. Daval-Frérot, Chaithya G R, F. Ponce, A. Massire, B. Mailhe, M. Nadar, A. Vignaud, and **P. Ciuciu**, "Benchmarking common and advanced non-Cartesian trajectories with high acceleration and static off-resonance effects," *submitted to* 31th annual ISMRM meeting, CEA/NeuroSpin, Inria-CEA MIND, Saclay, France, Nov. 2022, Abstract 6501.

[3] Z. Amor, C. Le Ster, Chaithya G R, G. Daval-Frérot, B. Thirion, N. Boulant, A. Massire, F. Mirkes, **P. Ciuciu**, and A. Vignaud, "Impact of B_0 field imperfections correction on BOLD sensitivity in 3D-SPARKLING fMRI data," *submitted to* 31th annual ISMRM meeting, CEA/NeuroSpin, Inria-CEA MIND, Saclay, France, Nov. 2022, Abstract 2073.

[4] P.-A. Comby, Z. Amor, A. Vignaud, and **P. Ciuciu**, " Benchmarking local low rank denoising methods for task-based fMRI data analysis," *submitted to* 31th annual ISMRM meeting, CEA/NeuroSpin, Inria-CEA MIND, Saclay, France, Nov. 2022, Abstract 3216.

[5] A. Artiges, É. Granier, I. Uszynski, F. Mauconduit, **P. Ciuciu**, and C. Poupon, "A diffusion-weighted MRI pulse sequence development toolbox in the open source GinkgoSequence framework," *submitted to* 31th annual ISMRM meeting, CEA/NeuroSpin, Inria-CEA MIND, Saclay, France, Nov. 2022, Abstract 3486.

[6] M. Dumeur, S. H. Wang, **P. Ciuciu**, and M. Palva, "Multifractal scaling in the Landau-Ginzburg theory for cortical dynamics," in *Brain Criticality Hybrid Meeting*, National Institutes of Health, Bethesda, Maryland, USA, Nov. 2022.

[7] G. Biagi, **P. Ciuciu**, and Z. Saghi, "Deep learning approaches for electron tomography under limited data acquisition conditions," in *8th World Congress on Mechanical, Chemical, and Material Engineering (MCM'22)*, Prague, Czech Republic, Aug. 2022.

[8] Z. Amor, Chaithya G R, G. Daval-Frérot, B. Thirion, F. Mauconduit, **P. Ciuciu**, and A. Vignaud, "3D-SPARKLING for functional MRI: A pilot study for retinotopic mapping at 7T," in *28th Proc. OHBM*, Glasgow, UK, June 2022, Poster WTh931.

[9] 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.

[10] Chaithya G R, G. Daval-Frérot, A. Massire, B. 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.

[11] 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.

[12] Z. Amor, Chaithya G R, B. Daval-Frérot, 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.

[13] R. Baptista, A. Vignaud, Chaithya G R, G. Daval-Frérot, 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.

[14] A. Artiges, F. Mauconduit, I. Uszynski, B. Mulot, E. Chaillou, **P. Ciuciu**, and C. Poupon, "A novel modular and and Open Source MRI pulse sequence development framework dedicated to MRI systems," in *30th Proc. ISMRM*, London, UK, May 2022.

[15] 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. OHBM*, Virtual, June 2021.

[16] 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.

[17] 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.

[18] Z. Ramzi, **P. Ciuciu**, A. Vignaud, and J.-L. Starck, "Is good old GRAPPA dead?," in *29th Proc. ISMRM*, virtual, May 2021, number 1168.

[19] G. Daval-Frérot, 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.

[20] 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.

[21] M. Dumeur, **P. Ciuciu**, V. van Wassenhove, and P. Abry, "Pymultifracs: a python wavelet leader multifractal toolbox for assessing scale-free activity in brain signals," in *LiveMEEG – Good Scientific Practices in EEG and MEG research*, Virtual, Oct. 2020.

[22] 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. OHBM*, Virtual, June 2020.

[23] A. Massire, C. Giliyar-Radhakrishna, E. El Gueddari, F. Mauconduit, C. Lazarus, M. Ripart, P. Brugières, **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.

[24] 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. –.

[25] 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, (oral presentation).

[26] 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.

[27] 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.

[28] 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.

[29] C. Lazarus, P. Weiss, L. El Gueddari, F. Mauconduit, A. Vignaud, and **P. Ciuciu**, "3D SPARKLING for accelerated ex vivo T2*-weighted MRI with compressed sensing," in *27th Proc. ISMRM*, Montreal, QC, Canada, May 2019, number 426, (oral presentation as finalist of the I.I. Rabi ISMRM young investigator award).

[30] J.-M. Lin and **P. Ciuciu**, "Minimum-variance weighted image reconstruction and the application to MRI," in *26th Proc. ISMRM*, Paris, France, June 2018.

[31] 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.

[32] 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.

[33] 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.

[34] 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.

[35] A. Frau-Pascual, T. Perret, S. Bougacha, F. Forbes, and **P. Ciuciu**, "Advanced statistical analysis of functional Arterial Spin Labelling data," in *23rd Proc. OHBM*, Vancouver, Canada, June 2017.

[36] 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.

[37] 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.

[38] 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.

[39] 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.

[40] 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.

[41] **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. OHBM*, Geneva, Switzerland, June 2016.

[42] 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}P MRI," in *24th Proc. ISMRM*, Singapore, May 2016.

[43] A. Coste, A. Vignaud, **P. Ciuciu**, F. Boumezbeur, A. Amadon, F. Mauconduit, S. Romanzetti, D. Le Bihan, and C. Lerman, "^{31}P MR imaging and concentration measurements," in *24th Proc. ISMRM*, Singapore, May 2016.

[44] A. Coste, N. Chauffert, A. Vignaud, F. Boumezbeur, **P. Ciuciu**, P. Weiss, S. Romanzetti, D. Le Bihan, and C. Lerman, "^{31}P MRI: Comparison of image reconstruction approaches for sub-Nyquist acquisitions at ultra high field," in *32th Proc. ESMRMB*, Edinburgh, UK, Oct. 2015.

[45] 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. OHBM*, Honolulu, USA, June 2015.

[46] **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.

[47] 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. OHBM*, Seattle, USA, June 2013, Elsevier.

[48] 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 presentation).

[49] 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.

[50] **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.

[51] 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.

[52] 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.

[53] 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 presentation).

[54] 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. OHBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010, Elsevier.

[55] 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. OHBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010.

[56] 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. OHBM*, D Le Bihan, Ed., Barcelona, Espania, June 2010, Elsevier.

[57] T. Vincent, A. Tucholka, and **P. Ciuciu**, "Surface-based joint detection-estimation of brain activity in functional MRI," in *16th Proc. OHBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010, Elsevier, (oral presentation).

[58] **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. OHBM*, D. Le Bihan, Ed., Barcelona, Spain, June 2010, Elsevier.

[59] 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. OHBM*, San Francisco, CA, USA, June 2009.

[60] T. Vincent, L. Risser, J. Idier, and **P. Ciuciu**, "Spatially adaptive mixture modelling for analysis of fMRI time series," in *15th Proc. OHBM*, San Francisco, CA, USA, June 2009.

[61] L. Chaari, **P. Ciuciu**, A. Benazza-Benyahia, and J.-C. Pesquet, "Performance of three parallel MRI reconstruction mthods in the presence of coil sensitivity map errors," in *17th Proc. ISMRM*, Honolulu, USA, Apr. 2009.

[62] 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.

[63] 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.

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[65] 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. OHBM*, Chicago, IL, June10–14 2007.

[66] **P. Ciuciu**, P. Abry, and C. Rabrait, "Leader-based multifractal analysis of EVI fMRI time series: evidence of scaling phenomenae in a language comprehension study," in *13th Proc. OHBM*, Chicago, IL, June10–14 2007.

[67] C. Rabrait, **Ciuciu, P.**, 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 presentation).

[68] **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. OHBM*, Florence, Italy, June 11-15 2006.

[69] S. Makni, **P. Ciuciu**, J. Idier, and J.-B. Poline, "Anatomically informed joint detection-estimation of brain activity," in *12th Proc. OHBM*, Florence, Italy, June 11-15 2006.

[70] A. Botzung, **Ciuciu, P.**, 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. OHBM*, Florence, Italy, June 2006.

[71] S. Makni, Ch. Grova, **P. Ciuciu**, and J.-B. Poline, "An interpolation method for fMRI data extraction on the cortical surface," in *11th Proc. OHBM*, Toronto, Canada, June 2005.

[72] **P. Ciuciu**, Ch. Pallier, B. Thirion, , S. Mériaux, G. Dehaene-Lambertz, and S. Dehaene, "Hemodynamic response estimation in auditory sentence repetition," in *11th Proc. OHBM*, Toronto, Canada, June 2005.

[73] S. Donnet, M. Lavielle, **P. Ciuciu**, and J.-B. Poline, "BOLD single-trial variability and model selection," in *10th Proc. OHBM*, Budapest, Hungary, June 2004.

[74] S. Makni, **P. Ciuciu**, 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. OHBM*, Budapest, Hungary, June 2004.

[75] **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. OHBM*, New York, USA, June 2003.

[76] **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. OHBM*, Sendai, Japan, June 2002.

9 Invited talks and seminars (since 2002)

[1] **P. Ciuciu**, "Perfecting Brain Scans: New Horizons," Heraklion, Greece, July 2022, 13th FORTH scientific retreat.

[2] **P. Ciuciu**, "Perfecting Brain Scans: New Horizons," Lausanne, Switzerland, June 2022, EPFL.

[3] **P. Ciuciu**, "Learning Based Non-Cartesian Hardware Compliant Sampling Trajectories for Accelerated MRI: Beyond Compressed Sensing Theory," Virtual, Mar. 2022, SIAM Imaging Science conference.

[4] **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.

[5] **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.

[6] **P. Ciuciu**, "Functional Connectivity in the Infra-slow Human Brain Activity in MEG," Helsinki, Finland, Nov. 2021, Neuroscience Center (HiLIFE, University of Helsinki).

[7] **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.

[8] **P. Ciuciu**, "Accelerated MR imaging: from shorter data acquisition to faster image reconstruction," Marseille (virtual), France, Jan. 2021, Aix-Marseille Université.

[9] **P. Ciuciu**, "Accelerated MR imaging: from shorter data acquisition to faster image reconstruction," Gif-sur-Yvette (virtual), France, Dec. 2020, CEA/NeuroSpin seminars.

[10] **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.

[11] **P. Ciuciu**, "Emergence of β and γ networks following multisensory training," Helsinki, Finland, Feb. 2020, Neuroscience Center, University of Helsinki.

[12] **P. Ciuciu**, "SPARKLING: variable-density k-space filling curves for accelerated T2*-weighted MRI," Sophia-Antipolis, France, Oct. 2019, Inria Sophia-Antipolis, Université Côte d'Azur.

[13] **P. Ciuciu**, "Online MR image reconstruction for compressed sensing acquisition in T_2^* imaging," Sophia-Antipolis, France, Oct. 2019, I3S – CNRS.

[14] **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 ».

[15] **P. Ciuciu**, "Apprentissage profond pour la reconstruction d'images IRM acquises sous forme comprimée," Paris, France, Apr. 2019, Collège de France.

[16] **P. Ciuciu**, "SPARKLING: variable-density k-space filling curves for accelerated T2*-weighted MRI," Geneva, Switzerland, Feb. 2019, Geneva University Hospital.

[17] **P. Ciuciu**, "SPARKLING: variable-density k-space filling curves for accelerated T2*-weighted MRI," Edinburgh, UK, Nov. 2018, Heriot-Watt University, School of Engineering and Physical Sciences.

[18] **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.

[19] **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.

[20] **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.

[21] **P. Ciuciu**, "Prospective SPARKLING trajectories for accelerated 2D high resolution MRI at 7 Tesla," Montreal, QU, Canada, Dec. 2017, École Polytechnique de Montreal.

[22] **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.

[23] **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.

[24] **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.

[25] **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.

[26] **P. Ciuciu**, "Convergence of neural activity to multifractal attractors in MEG predicts learning," Avignon, France, Sep. 2016, GDR of Multifractal Analysis.

[27] **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.

[28] **P. Ciuciu**, "Compressive sensing for MRI," Rennes, France, 21 June 2016, INRIA Bretagne Atlantique.

[29] **P. Ciuciu**, "New physically plausible compressive sampling schemes for MRI: First results at 7 tesla," Valbonne, France, 17 June 2016, INRIA Sophia-Antipolis.

[30] **P. Ciuciu**, "Convergence to asymptotic multifractal dynamics in MEG predicts learning," Geneva, Switzerland, 3 May 2016, University of Geneva - Campus BioTech.

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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.

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[4] **P. Ciuciu**, "MRI reconstruction," Strasbourg, France, Nov. 2016, IEEE NSSC & MIC conference.

[5] **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.

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