Christian-George Bénar, Eng, Ph. D.

48 year old, married, two children

Research Director, Inserm, Institut de Neurosciences des Systèmes, Marseille
Head of "Dynamical Brain Mapping" team
Scientific head of Magnetoencephalography platform, Marseille
christian.benar@univ-amu.fr

1. Education & qualifications

2013: Accreditation to supervise research (HDR), Aix Marseille University

1998-2004 : Master Eng transferred to **PhD, Biomedical Engineering dept, McGill University, Montreal** Supervisor Prof. Jean Gotman.Dean's honour list (first 10% of University PhD students).

1991-1994 : Engineering studies at **Ecole Supérieure d'Electricité (Supélec)**, Paris and Metz, France Specialization in digital signal processing.

2. Work Experience

Since 2006 : **Researcher at U751** (Dir. Chauvel), **and then at « Institut de Neurosciences des Systèmes»** (Dir. V Jirsa), a joint INSERM and Aix-Marseille Université laboratory.

2005-2006 : Postdoctoral fellow in Odyssée team, INRIA Sophia Antipolis (supervisor Maureen Clerc).

2004-2005 : Postdoctoral fellow (Chateaubriand fellowship), between Marseille fMRI center (Jean-Luc Anton) and INSERM U751 (Patrick Chauvel).

1994-95: Scientific of the contingent , IMNSSA Toulon (Franck Vidal).

1995-1997 : Software programmer, Stellate Systems, Montréal (Jean Gotman).

1994 : End of study internship, Philips Laboratories of Electronics (LEP, Paris).

3. Supervision and team direction

Since 2014: **Scientific head of the magnetoencephalography platform of Marseille.**

Depuis 2012**: Head of Dynamical Brain Mapping (DynaMap) team** within the Institut de Neurosciences des systèmes (Dir V Jirsa) (2018: 8 permanent members, 5 non-permanent).

Past supervision and co-supervision of 8 PhDs, 3 postdocs, 2 engineers, 9 interns and master students.

4. Expertise, editorial tasks

Member of editorial board of Brain Topography (editor in chief C. Michel)

member of scientific board of the International society for Brain Electromagnetic Topography (ISBET)

Regular reviewer (Neuroimage, J Neuroscience, Clinical Neurophysiology, Brain, Epilepsia, Plos One, IEEE conferences...)

Expertise: laboratoire GRAMFC, grants for Fonds Recherche Québec-Nature et technologies, Canadian Health Research Institutes (CIHR) Fond Epilepsy UK, Région Romagne (Italie), The Netherlands Organisation for Health Research and Development.

Member of jury for Phd Thesis (University College London, U Birmingham, Université de Lyon, Université de Nancy, Université de Grenoble)

5. Grants

2019-2022: Neurosense Project (local coordinator, PI Fabrice Wendling), ANR (172 722€)

2018-2021: Scales Project **(P.I.)**, Flag-Era call, under the Human Brain Project (278 000 €)

2018-2024: RHU EPinov project (task coordinator, PI Fabrice Bartolomei) 506917€ sur 4.8M

2018-2020: SEEGMIP Project (local coordinator, PI Olivier David), Human Brain Project sub-project(178 890 €)

2014-2018: Vibrations projet **(P.I.)**, joint call ANR-DGOS translational research (PRTS) (85760€)

2014-2018: ANR project Force (local coordinator, PI P Kahane), 123000€

2013-2015: MEG-EEG-SEEG simultaneous recordings **(P.I.)**, engineer grant Fondation recherche médicale (FRM) 80000€

2010-2013 : ANR Multimodel **(P.I.)** « Multi-modal data fusion with biophysical models for identification of hidden parameters in patho/physiological brain activity "143000€

2008-2009 : INRIA-INSERM joint project (co-PI) « modélisation du couplage neuro-vasculaire pour les décharges épileptiques ». Montant : 12 000 €.

2005-2006 : Bourse postdoctorale INRIA

2004-2005 : Bourse postdoctorale Chateaubriand

6. Industrial collaborations and patents

Collaboration with **Micromed** within the ANR Force project**.**

Co-inventor (with B. Colombet and JM Badier) of Anywave free sofware (deposit to SATT sud-est)

Patent deposit " PROCEDE DE DETECTION D'ELEMENTS D'INTERET DANS DES SIGNAUX ELECTROPHYSIOLOGIQUE ET DETECTEUR INPI 16/00332"

7. Organization of workshops

Sept 2019 BACI conference , Chengdu "Sensing deep brain activity with EEG and MEG (chair C Michel and C Bénar)

Oct 2016: Int Conf Biomagnetism, Seoul. "Simultaneous recordings of invasive and non-invasive electrophysiological data" (Chair C Bénar and S Dalal)

June 2016: Int Conf Organisation for Human Brain Mapping, Geneva, Morning Symposium, "The added value of simultaneous recordings in neurosciences" (Chair C Bénar and C Grova)

Member of the organizing team of GDR multi-electrode meeting (Marseille 2012), the Dynamic Brain (Marseille 2013) and the "Brain connectivity workshop" (Marseille 2016).

8. Teaching

" Characterizing brain networks in MEG and intracerebral EEG during presurgical mapping in epilepsy" Winter school on biomedical signal and image processing, Sfax, Dec 2016

"Connectivity in epilepsy: Characterization of pathological networks on EEG, MEG and intracerebral EEG" OHBM annual meeting, June 2017, Vancouver,

"Depth/surface relationships: Confronting noninvasive measures to intracerebral EEG". OHBM2016 - Electromagnetical Neuroimaging course June 2016, Geneva

"Depth/surface relationships: Confronting noninvasive measures to intracerebral EEG". OHBM2015 - Electromagnetical Neuroimaging course June 2015, Hawaii

"Multimodal integration in a clinical context", Human Brain Mapping conference OHBM 2014 Hamburg, Electromagnetical Brain Mapping Workshop, June 2014

2015: Course on magnetoencephalography (cours France Life imaging 2015)

2014-current: "PhD Program" lectrue on electrophysiological methods

2008-current "Bases du traitement du signal en électrophysiologie" DU electrophysiologie Aix-Marseille Université

2012 -current: « bases du traitement du signal » DU Electrophysiologie

Lectures at Ecole Centrale Marseille, Ecole des Mines de Saint Etienne, Polytech Paris

MEG Course, France Life Imaging workshop

9. Oral interventions

Extracting networks from MEG, SEEG and simultaneous recordings, Workshop on Computational Neurophysiology, INT May 6th, 2019

Simultaneous MEEG/SEEG recordings, Cutting EEG Workshop, Paris July 2018

Investigation of epileptic networks: MEG, SEEG and simultaneous recordings workshop "Invasive mathematics' Genova, may 2018

Keynote lecture, " Simultaneous recordings for characterizing the links between modalities: the case of epileptic networks" BACI meeting, Bern 2017

"Brain mapping at two scales: simultaneous recordings of MEG and intracerebral EEG". Salzburg Mind-Brain Annual Meeting july 2017

"Quantification de la SEEG critique. Méthodes et applications". Journées Bancaud Antibes 14-17 mai 2017

"Local and large-scale networks in epilepsy: findings in MEG, intracerebral EEG and simultaneous depth/surface recordings". Seminar CBC Pompeu Fabra Univ May 2017

"Multimodal recordings and signal processing in epilepsy " Séminaire GIPSA LAB, 23 Mars 2017

"Multimodal recordings and signal processing in epilepsy" VUmc Seminar Feb 2017

Local and large-scale networks in epilepsy: findings in MEG, intracerebral EEG and simultaneous depth/surface recordings séminaire Centre de Recherche en Neurosciences de Lyon 6 juin 2017

"Le traitement du signal pour le diagnostic de l'épilepsie" Journée d'information et d'échange sur l'épilepsie, la TImone feb 2016

" Characterizing brain networks in MEG and intracerebral EEG during presurgical mapping in epilepsy " Biomedical signal and image processing winter school, Sousse Dec. 2016

"Simultaneous recordings of MEG and intracerebral EEG for developing and validating signal processing methods", Satellite meeting Int Conf Biomagnetism BIOMAG, Oct. 2, 2016 : Source Estimation in MEG: new developments and new needs

"Simultaneous recordings of MEG, EEG and intracerebral EEG", centre PERFORM, Concordia university, Montreal Jul 2016

"Signals and Models in Non-Invasive Brain Mapping" CerCo seminar Feb 2015

"Confrontation of non-invasive methods to intracerebral recordings", Human Brain Mapping conference OHBM 2015 Honolulu, Electromagnetical Brain Mapping Workshop

"Simultaneous recordings of interictal MEG and intracerebral EEG", Symposium « Minimally invasive epilepsy treatment » Kempenhaeghe Hospital Sep 3, 2015

"Investigation of depth-surface relationships by simultaneous EEG-MEG-SEEG recordings" Elekta Symposium, Institut du cerveau et de la moelle, Pitié-Salpêtrière, Apr 2015

"Interictal/Preictal Networks in SEEG, MEG and Simultaneous Recordings" International Conference on Basic and Clinical Multimodal imaging – BACI, Utrecht Sept 4th, 2015

"Enregistrements simultanés EEG-MEG-SEEG pour évaluer et optimiser les méthodes de traitement du signal" GRETSI 2015 Lyon

"Non-invasive definition of the primary irritative zone: biophysical and signal processing issues" Cleveland Clinic Brain Mapping Workshop, Apr 10-13 2014

"Modelling for investigating the neurovascular coupling in epilepsy" International Conference on Basic and Clinical Multimodal imaging – BACI, Genève 2013 Sep. 5-8 2013

"Simultaneous recording of MEG, EEG and intracerebral EEG", Colloque inaugural du centre de magnétoencéphalographie de l'institut du cerveau et de la moelle, Pitié-Salpêtrière, Dec 2013

"Interictal epileptic networks in MEG and SEEG" Workshop on Scale-free Dynamics and Networks in Neurosciences, October 21-24, 2013, Montréal

"Simultaneous recording of MEG, EEG and intracerebral EEG", Colloque inaugural du centre de magnétoencéphalographie de l'institut du cerveau et de la moelle, Pitié-Salpétrière 2013

May 2012 Workshop single trial EEG-fMRI, Delmenhorst, Allemagne

March 2012 Workshop "EEG as an imaging tool in epilepsy", Verone, Italie

Sept 2011: Workshop experts de Epilepsy research UK, Oxford "Pre-ictal and pre-spike hemodynamics how to record them? what do we record?"

Mar 2011 " Investigation of networks involved in interictal epileptiform discharges: EEG, MEG, intracerebral EEG", EEGLAB workshop, Aspect

Juin 2010 : Congrès de la société de neurophysiologie clinique de langue francaise, Lyon, « Investigation du couplage neurovasculaire pour les pointes épileptiques »

Avril 2010: Biomag meeting, satellite workshop, Dubrovnik “MEG in epilepsy: in search of the primary epileptogenic zone”

Mars 2009: Neuromath meeting, Leuven “Single-trial analysis for linking electrophysiology and hemodynamic response”

Janvier 2009: “Single-trial analysis for linking electrophysiology and hemodynamic response”, séminaire laboratoire de cartographie des fonctions cérébrales, HUG Genève

Septembre 2008 : Simultaneous EEG-fMRI : a critical view on methodology. European conference on epilepsy, Berlin.

Nov 2007 : « Cartographie fonctionnelle en MEEG, EEG-IRMf et SEEG » GDR statistiques et santé (direction Marc Lavielle, INRIA Futurs et UMR 8628), Paris

9. Publications

ORCID 0000-0002-3339-1306

Statistics (18/03/2019)
Web of science: 110 publications, 2889 citations (2677 without self-citations), average citation 26, h-index 27
Google scholar: 4274 citations, h-index 32

Book chapters

Bénar Christian-G., Badier Jean-Michel, Simultaneous recordings of MEG and intracerebral EEG, in Magnetoencephalography: From Signals to Dynamic Cortical Networks, 2nd Edition, edited by Selma Supek and Cheryl J. Aine. In press

C Bénar Imagerie fonctionnelle cérébrale, *in* L. Bougrain, M. Clerc, F. Lotte (Eds) "Comprendre et concevoir les interfaces cerveau-ordinateur", Wiley

M Clerc, T Papadopoulo, **C Bénar** Single-trial analysis of bioelectromagnetic signals: the quest for hidden information, *in* F. Cazals and P Kornprobst (Ed) Modeling in computational biology and biomedicine , Springer

CG Bénar, M Guye, V Jirsa, Que fait le cerveau quand il ne fait rien ? *in* FX Alario (Editor) « Toutes les questions que vous vous posez sur le cerveau », Odile Jacob (traduit en italien)

A Bagshaw, **CG Bénar**, Scanning strategies for simultaneous EEG-fMRI recordings, *in* M. Ullsperger & S. Debener (Eds) “Integrating EEG and fMRI", Oxford University Press

CG Bénar, A Bagshaw, L. Lemieux, Experimental Design and Data Analysis Strategies, *in* C. Mulert, L. Lemieux (Eds) “EEG-fMRI- Physiology, Technique and Applications”, Springer

Peer-reviewed publications in leading position (first, last, corresponding author)

1. Bénar CG, Grova C, Jirsa VK, Lina JM. Differences in MEG and EEG power-law scaling explained by a coupling between spatial coherence and frequency: a simulation study. J Comput Neurosci. 2019 J
2. McGonigal A, Marquis P, Medina S, Bartolomei F, Rheims S, Bernard C, Bénar C. Postictal stereo-EEG changes following bilateral tonic-clonic seizures. Epilepsia. 2019 Aug;60(8):1743-1745

3. Bartolomei F, Lagarde S, Scavarda D, Carron R, Bénar CG, Picard F. The role of the dorsal anterior insula in ecstatic sensation revealed by direct electrical brain stimulation. Brain Stimul. 2019 Sep - Oct;12(5):1121-1126.
4. Michel CM, Baillet S, Benar C, Bertrand O, Gotman J, He B, Huiskamp GJ, Lemieux L, Makeig S, Pascual-Leone A, Salmelin R, Seri S, Valdes-Sosa P, Wendling F. In Memoriam: Fernando Lopes da Silva (1935-2019). Brain Topogr. 2019 Jul;32(4):519-522
5. He B, Astolfi L, Valdes-Sosa PA, Marinazzo D, Palva S, Benar CG, Michel CM, Koenig T. Electrophysiological Brain Connectivity: Theory and Implementation. IEEE Trans Biomed Eng. 2019
6. Pizzo F, Roehri N, Medina Villalon S, Trébuchon A, Chen S, Lagarde S, Carron R, Gavaret M, Giusiano B, McGonigal A, Bartolomei F, Badier JM, **Bénar CG.** Deep brain activities can be detected with magnetoencephalography. Nat Commun. 2019 Feb 27;10(1):971.

   commented in Englot DJ. Epilepsy Curr. 2019 and Lopes da Silva FH. Brain Topogr. 2019 Jul;32(4):523-526.

7. Lagarde S, Roehri N, Lambert I, Trebuchon A, McGonigal A, Carron R, Scavarda D, Milh M, Pizzo F, Colombet B, Giusiano B, Medina Villalon S, Guye M, Bénar CG*, Bartolomei F.* Interictal stereotactic-EEG functional connectivity in refractory focal epilepsies. Brain. 2018 Oct 1;141(10):2966-2980. *equally contributing
8. Medina Villalon S, Paz R, Roehri N, Lagarde S, Pizzo F, Colombet B, Bartolomei F, Carron R, **Bénar CG**. EpiTools, A software suite for presurgical brain mapping in epilepsy: Intracerebral EEG. J Neurosci Methods. 2018 Jun 1;303:7-15.
9. Jmail N, Zaghdoud M, Hadriche A, Frikha T, Ben Amar C, **Bénar C**. Integration of stationary wavelet transform on a dynamic partial reconfiguration for recognition of pre-ictal gamma oscillations. Heliyon. 2018 Mar 1;4(2):e00530.
10. Roehri N, Pizzo F, McGonigal A, Bartolomei F, Bénar CG. Reply to "are spikes noninferior to high-frequency oscillations?" Ann Neurol. 2018 Apr;83(4):870-871.
11. Lambert I, Roehri N, Giusiano B, Carron R, Wendling F, Benar C*, Bartolomei F*. Brain regions and epileptogenicity influence epileptic interictal spike production and propagation during NREM sleep in comparison with wakefulness. Epilepsia. 2018 Jan;59(1):235-243 *equally contributing
12. Roehri N, Pizzo F, Lagarde S, Lambert I, Nica A, McGonigal A, Giusiano B, Bartolomei F**, Bénar CG.** High-frequency oscillations are not better biomarkers of epileptogenic tissues than spikes. Ann Neurol. 2017 Dec 15
13. Badier JM, Dubarry AS, Gavaret M, Chen S, Trébuchon AS, Marquis P, Régis J, Bartolomei F, **Bénar CG***, Carron R.Technical solutions for simultaneous MEG and SEEG recordings: towards routine clinical useJ Phys Meas 2017 Sep 21;38(10):N118-N12*equal last, corresponding
14. Bartolomei F, Lagarde S, Lambert I, Trébuchon A, Villalon SM, McGonigal A, **Bénar CG**. Brain connectivity changes during ictal aggression (a strangulation attempt). Epileptic Disord. 2017
15. Krieg J, Koessler L, Jonas J, Colnat-Coulbois S, Vignal JP, **Bénar CG***, Maillard LG*. Discrimination of a medial functional module within the temporal lobe using an effective connectivity model: A CCEP study. Neuroimage. 2017 Jul 31. *equally contributing
16. Maksymenko K, Giusiano B, Roehri N, **Bénar CG***, Badier JM. Strategies for statistical thresholding of source localization maps in magnetoencephalography and estimating source extent. J Neurosci Methods. 2017 Jul 21;290:95-104. *corresponding
17. Defining epileptogenic networks: Contribution of SEEG and signal analysis. Bartolomei F, Lagarde S, Wendling F, McGonigal A, Jirsa V, Guye M, **Bénar C**. Epilepsia. 2017 Jul;58(7):1131-1147

18. Roehri N, Pizzo F, Bartolomei F, Wendling F, **Bénar CG**. What are the assets and weaknesses of HFO detectors? A benchmark framework based on realistic simulations. PLoS One. 2017
19. Dubarry AS, Llorens A, Trébuchon A, Carron R, Liégeois-Chauvel C, **Bénar CG***, Alario FX*. Estimating Parallel Processing in a Language Task Using Single-Trial Intracerebral Electroencephalography. Psychol Sci. 2017 Apr;28(4):414-426. * equal contribution
20. Jmail N, Gavaret M, Bartolomei F, **Bénar CG**. Despiking SEEG signals reveals dynamics of gamma band preictal activity. Physiol Meas. 2017 Jan 18;38(2):N42-N56.
21. Bartolomei F, Lagarde S, Médina Villalon S, McGonigal A, **Benar CG**. The "Proust phenomenon": Odor-evoked autobiographical memories triggered by direct amygdala stimulation in human. Cortex. 2016 Dec 18.
22. Roehri N, Lina JM, Mosher JC, Bartolomei F, **Benar CG**. Time-Frequency Strategies for Increasing High-Frequency Oscillation Detectability in Intracerebral EEG. IEEE Trans Biomed Eng. 2016 Dec;63(12):2595-2606.
23. Gavaret M, Dubarry AS, Carron R, Bartolomei F, Trébuchon A, **Bénar CG**. Simultaneous SEEG-MEG-EEG recordings Overcome the SEEG limited spatial sampling. Epilepsy Res. 2016 Dec;128:68-72.
24. Bartolomei F, Bonini F, Vidal E, Trébuchon A, Lagarde S, Lambert I, McGonigal A, Scavarda D, Carron R, **Benar CG**. How does vagal nerve stimulation (VNS) change EEG brain functional connectivity? Epilepsy Res. 2016
25. Jmail N, Gavaret M, Bartolomei F, Chauvel P, Badier JM, **Bénar CG**. Comparison of Brain Networks During Interictal Oscillations and Spikes on Magnetoencephalography and Intracerebral EEG. Brain Topogr. 2016 Sep;29(5):752-65
26. Courtens S, Colombet B, Trébuchon A, Brovelli A, Bartolomei F, **Bénar CG**. Graph Measures of Node Strength for Characterizing Preictal Synchrony in Partial Epilepsy. Brain Connect. 2016 Sep;6(7):530-9.
27. Saillet S, Quilichini PP, Ghestem A, Giusiano B, Ivanov AI, Hitziger S, Vanzetta I, Bernard C, **Bénar C-G.** Interneurons contribute to the hemodynamic/metabolic response to epileptiform discharges. J Neurophysiol 2016 Mar;115(3):1157-69.
28. Bartolomei F, Trébuchon A, Bonini F, Lambert I, Gavaret M, Woodman M, Giusiano B, Wendling F, **Bénar C**. What is the concordance between the seizure onset zone and the irritative zone? A SEEG quantified study. Clin Neurophysiol. 2015 Oct 19
29. Colombet B, Woodman M, Badier JM, **Bénar CG**. 'AnyWave: A cross-platform and modular software for visualizing and processing electrophysiological signals', J Neurosci Methods. 2015 Mar 15;242:118-26
30. Dubarry AS, Badier JM, Trébuchon-Da Fonseca A, Gavaret M, Carron R, Bartolomei F, Liégeois-Chauvel C, Régis J, Chauvel P, Alario FX, **Bénar C**. Simultaneous recording of MEG, EEG and intracerebral EEG during visual stimulation: From feasibility to single-trial analysis. Neuroimage. 2014 Oct 1;99:548-58.
31. Malinowska U, Badier JM, Gavaret M, Bartolomei F, Chauvel P, **Bénar C-G**. Interictal networks revealed by magnetoencephalography and intracerebral EEG Hum Brain Mapp. 2014 Jun;35(6):2789-805
32. Voges N, Blanchard S, Wendling F, David O, Benali H, Papadopoulo T, Clerc M, **Bénar C** Modeling of the neurovascular coupling in epileptic discharges. Brain Topogr, 2012 Apr;25(2):136-56
33. Schwartz TH, Hong SB, Bagshaw AP, Chauvel P, **Bénar CG**. Preictal changes in cerebral haemodynamics: Review of findings and insights from intracerebral EEG. Epilepsy Res. Dec; 2011 97(3):252-66.

34. Jmail N, Gavaret M, Wendling F, Kachouri A, Hamadi G, Badier JM, **Bénar CG**. A comparison of methods for separation of transient and oscillatory signals in EEG. J Neurosci Methods. 2011 Aug 15;199(2):273-89.
35. Krieg J, Trébuchon-Da Fonseca A, Martínez-Montes E, Marquis P, Liégeois-Chauvel C, **Bénar CG**. A comparison of methods for assessing alpha phase resetting in electrophysiology, with application to intracerebral EEG in visual areas. Neuroimage. 2011 Mar 1;55(1):67-86.
36. Vanzetta I, Flynn C, Ivanov A, Bernard C, **Bénar CG**, Linear coupling between single-event blood flow responses and interictal discharges in a model of epilepsy. J Neurophysiol 2010 Jun; 103(6):3139-3152.
37. **Bénar CG**, Chauvière L, Bartolomei F, Wendling F. Pitfalls of high-pass filtering for detecting epileptic oscillations: a technical note on "false" ripples. Clin Neurophysiol. 2010 Mar;121(3):301-10.
38. **Bénar CG**, Papadopoulo T, Torrésani B, Clerc M. Consensus Matching Pursuit for multi-trial EEG signals. J Neurosci Methods. 2009 May 30;180(1):161-70
39. **Bénar CG**, Schön D, Grimault S, Nazarian B, Burle B, Roth M, Badier JM, Marquis P., Liegeois-Chauvel C, Anton JL, Single-trial analysis of auditory event-related potentials in simultaneous EEG-fMRI, *Hum Brain Mapp*. 2007 Jul;28(7):602-13.
40. **Bénar CG**, Grova C, Kobayashi E, Bagshaw AP, Dubeau F, Gotman J. EEG-fMRI of Epileptic Spikes : Concordance with EEG source localization and intracranial EEG*, Neuroimage* 2006 May 1;30(4):1161-70
41. **Bénar CG**, Gunn RN, Grova C, Champagne B, Gotman J. Statistical maps for EEG dipolar source localization. *IEEE Trans Biomed Eng* 2005 Mar;52(3):401-13.
42. **Bénar CG**, Aghakhani Y, Wang Y, Izenberg A, Al-Asmi A, Dubeau F, Gotman J. Quality of EEG in Simultaneous EEG-fMRI for Epilepsy. *Clin Neurophysiol* 2003;114(3):569-80..
43. **Bénar CG**, Gross DW, Wang Y, Petre V, Pike B, Dubeau F, Gotman J. The BOLD Response to Interictal Epileptiform Discharges. *Neuroimage* 2002; 17, 1182-1192
44. **Bénar CG**, Gotman J. Modeling of post-surgical brain and skull defects in the EEG inverse problem with the boundary element method. *Clin Neurophysiol* 2002;113(1):48-56

Peer-reviewed publications in other position

1. Bartolomei F, Lagarde S, Scavarda D, Carron R, Bénar CG, Picard F. The role of the dorsal anterior insula in ecstatic sensation revealed by direct electrical brain stimulation. Brain Stim *accepted*
2. Michel CM, Baillet S, Benar C, Bertrand O, Gotman J, He B, Huiskamp GJ, Lemieux L, Makeig S, Pascual-Leone A, Salmelin R, Seri S, Valdes-Sosa P, Wendling F. In Memoriam: Fernando Lopes da Silva (1935-2019). Brain Topogr. 2019 Jun 8.
3. He B, Astolfi L, Valdes-Sosa PA, Marinazzo D, Palva S, Benar CG, Michel CM, Koenig T. Electrophysiological Brain Connectivity: Theory and Implementation. IEEE Trans Biomed Eng. 2019
4. Scholly J, Pizzo F, Timofeev A, Valenti-Hirsch MP, Ollivier I, Proust F, Roehri N, Bénar CG, High-frequency oscillations and spikes running down after SEEG-guided thermocoagulations in the epileptogenic network of periventricular nodular heterotopia. Scholly J, Pizzo F,

Timofeev A, Valenti-Hirsch MP, Ollivier I, Proust F, Roehri N, Bénar CG, Hirsch E, Bartolomei F. Epilepsy Res. 2019 Feb;150:27-31.

5. Boussen S, Spiegler A, Benar C, Carrère M, Bartolomei F, Metellus P, Voituriez R, Velly L, Bruder N, Trébuchon A. Time rescaling reproduces EEG behavior during transition from propofol anesthesia-induced unconsciousness to consciousness. Sci Rep. 2018 Apr 16;8(1):6015.
6. Wirsich J, Rey M, Guye M, Bénar C, Lanteaume L, Ridley B, Confort-Gouny S, Cassé-Perrot C, Soulier E, Viout P, Rouby F, Lefebvre MN, Audebert C, Truillet R, Jouve E, Payoux P, Bartrés-Faz D, Bordet R, Richardson JC, Babiloni C, Rossini PM, Micallef J, Blin O, Ranjeva JP Brain Networks are Independently Modulated by Donepezil, Sleep, and Sleep Deprivation. Pharmacog Consortium. Brain Topogr. 2018 May;31(3):380-391
7. Wang HE, Friston KJ, Bénar CG, Woodman MM, Chauvel P, Jirsa V, Bernard C. MULAN: Evaluation and ensemble statistical inference for functional connectivity.. Neuroimage. 2018 Feb 1;166:167-184.
8. Pizzo F, Roehri N, Catenoix H, Medina S, McGonigal A, Giusiano B, Carron R, Scavarda D, Ostrowsky K, Lepine A, Boulogne S, Scholly J, Hirsch E, Rheims S, Bénar CG, Bartolomei F. Epilepsia. 2017 Dec;58(12):2112-2123.Complementary contributions of concurrent EEG and fMRI connectivity for predicting structural connectivity. Wirsich J, Ridley B, Besson P, Jirsa V, Bénar C, Ranjeva JP, Guye M. Neuroimage. 2017
9. Adaptive Waveform Learning: A Framework for Modeling Variability in Neurophysiological Signals Hitziger, S ; Clerc, M Saillet, S; Benar, C ; Papadopoulo, T IEEE Trans Sig Proc Proc Vol 65 , Issue 16, 2017
10. Jirsa VK, Proix T, Perdikis D, Woodman MM, Wang H, Gonzalez-Martinez J, Bernard C**, Bénar C**, Guye M, Chauvel P, Bartolomei F. The Virtual Epileptic Patient: Individualized whole-brain models of epilepsy spread. Neuroimage. 2017
11. Marchi A, Bonini F, Lagarde S, McGonigal A, Gavaret M, Scavarda D, Carron R, Aubert S, Villeneuve N, Médina Villalon S, **Bénar C**, Trebuchon A, Bartolomei F. Occipital and occipital "plus" epilepsies: A study of involved epileptogenic networks through SEEG quantification. Epilepsy Behav. 2016 Sep;62:104-14
12. Wirsich J, Perry A, Ridley B, Proix T, Golos M, **Bénar C**, Ranjeva JP, Bartolomei F, Breakspear M, Jirsa V, Guye M. Whole-brain analytic measures of network communication reveal increased structure-function correlation in right temporal lobe epilepsy. Neuroimage Clin. 2016 May 19;11:707-18.
13. Boussen S, Velly L, **Benar C**, Metellus P, Bruder N, Trébuchon A. In Vivo Tumour Mapping Using Electrocorticography Alterations During Awake Brain Surgery: A Pilot Study. Brain Topogr. 2016 Sep;29(5):766-82.
14. Blanchard S, Saillet S, Ivanov A, Benquet P, **Bénar CG**, Pélégrini-Issac M, Benali H, Wendling F. A New Computational Model for Neuro-Glio-Vascular Coupling: Astrocyte Activation Can Explain Cerebral Blood Flow Nonlinear Response to Interictal Events. PLoS One. 2016 Feb 5;11(2):e0147292
15. Rivnay J, Leleux P, Ferro M, Sessolo M, Williamson A, Koutsouras DA, Khodagholy D, Ramuz M, Strakosas X, Owens RM, **Benar C**, Badier JM, Bernard C, Malliaras GG. High-performance transistors for bioelectronics through tuning of channel thickness. Sci Adv. 2015 May 22;1(4):e1400251

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