

Christian-George Béнар, Eng, Ph. D.

45 year old, married, two children

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 honout 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.

1989-1991 : Preparatory classes to engineering schools (physics P'), Lycée Carnot, Dijon

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 Odysée 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.** Co-organizer with Jean-Michel Badier of MEG seminars.

Depuis 2012: **Head of Dynamical Brain Mapping (DynaMap) team** within the Institut de Neurosciences des systèmes (Dir V Jirsa) (4 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 (éditeur en chef, 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

2014-2018: Vibrations projet (**P.I.**), joint call ANR-DGOS translational research (PRTS) (85760€ on total of 381000€)

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€ on total of 445000€.

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

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 (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

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

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

"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" lectue on electrophysiological methods

2008-current "Bases du traitement du signal en électrophysiologie" DU électrophysiologie 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

Keynote lecture, BACI meeting, Bern 2017

Lecture *Salzburg Mind-Brain Annual Meeting 2017*

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

"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

"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

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

"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

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 française, 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

Statistics - **Web of science:** 73 publications, 2057 citations, average citation 28, h-index: 20
 Google scholar: 3102 citations, h-index 25

Book chapters

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. 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.
2. 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.
3. 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
4. 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
5. 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.

6. Saillet S, Quilichini PP, Ghestem A, Giusiano B, Ivanov AI, Hitziger S, Vanzetta I, Bernard C, **Béнар C-G**. Interneurons contribute to the hemodynamic/metabolic response to epileptiform discharges. *J Neurophysiol* 2016 Mar;115(3):1157-69.
7. Bartolomei F, Trébuchon A, Bonini F, Lambert I, Gavaret M, Woodman M, Giusiano B, Wendling F, **Béнар C**. What is the concordance between the seizure onset zone and the irritative zone? A SEEG quantified study. *Clin Neurophysiol*. 2015 Oct 19
8. Colombet B, Woodman M, Badier JM, **Béнар CG**. 'AnyWave: A cross-platform and modular software for visualizing and processing electrophysiological signals', *J Neurosci Methods*. 2015 Mar 15;242:118-26
9. Leleux P, Rivnay J, Lonjaret T, Badier JM, **Béнар C**, Hervé T, Chauvel P, Malliaras GG. Organic Electrochemical Transistors for Clinical Applications. *Adv Healthc Mater*. 2014 Sep 29.
10. Dubarry AS, Badier JM, Trébuchon-Da Fonseca A, Gavaret M, Carron R, Bartolomei F, Liégeois-Chauvel C, Régis J, Chauvel P, Alario FX, **Béнар C**. Simultaneous recording of MEG, EEG and intracerebral EEG during visual stimulation: From feasibility to single-trial analysis. *Neuroimage*. 2014 May 23.
11. Wirsich J, **Béнар C**, Ranjeva JP, Descoins M, Soulier E, Le Troter A, Confort-Gouny S, Liégeois-Chauvel C, Guye M. Single-trial EEG-informed fMRI reveals spatial dependency of BOLD signal on early and late IC-ERP amplitudes during face recognition. *Neuroimage*. 2014
12. Malinowska U, Badier JM, Gavaret M, Bartolomei F, Chauvel P, **Béнар C-G**. Interictal networks revealed by magnetoencephalography and intracerebral EEG *Hum Brain Mapp*. 2014 Jun;35(6):2789-805
13. Voges N, Blanchard S, Wendling F, David O, Benali H, Papadopoulo T, Clerc M, **Béнар C** Modeling of the neurovascular coupling in epileptic discharges. *Brain Topogr*, 2012 Apr;25(2):136-56
14. Schwartz TH, Hong SB, Bagshaw AP, Chauvel P, **Béнар CG**. Preictal changes in cerebral haemodynamics: Review of findings and insights from intracerebral EEG. *Epilepsy Res*. Dec; 2011 97(3):252-66.
15. Jmail N, Gavaret M, Wendling F, Kachouri A, Hamadi G, Badier JM, **Béнар CG**. A comparison of methods for separation of transient and oscillatory signals in EEG. *J Neurosci Methods*. 2011 Aug 15;199(2):273-89.
16. Krieg J, Trébuchon-Da Fonseca A, Martínez-Montes E, Marquis P, Liégeois-Chauvel C, **Béнар 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.
17. Vanzetta I, Flynn C, Ivanov A, Bernard C, **Béнар 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.
18. **Béнар 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.
19. **Béнар CG**, Papadopoulo T, Torrèsani B, Clerc M. Consensus Matching Pursuit for multi-trial EEG signals. *J Neurosci Methods*. 2009 May 30;180(1):161-70
20. **Béнар CG**, Schön D, Grimault S, Nazarian B, Burle B, Roth M, Badier JM, Marquis P., Liégeois-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.

21. **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
22. **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.
23. **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..
24. **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
25. **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. Jirsa VK, Proix T, Perdakis 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
2. 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
3. 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.
4. Bousset S, Velly L, **Benar C**, Metellus P, Bruder N, Trébuchon A. In Vivo Tumour Mapping Using Electroencephalography Alterations During Awake Brain Surgery: A Pilot Study. *Brain Topogr*. 2016 Sep;29(5):766-82.
5. Blanchard S, SAILLET S, Ivanov A, Benquet P, **Bénar CG**, Péligrini-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
6. 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
7. Evangelista E, **Bénar C**, Bonini F, Carron R, Colombet B, Régis J, Bartolomei F. Does the Thalamo-Cortical Synchrony Play a Role in Seizure Termination? *Front Neurol*. 2015 Sep 1;6:192
8. Badier JM, **Bénar CG**, Woodman M, Cruto C, Chauvel P, Bartolomei F, Gavaret M. Ictal Magnetic Source Imaging in Presurgical Assessment. *Brain Topogr*. 2015
9. Wang HE, **Bénar CG**, Quilichini PP, Friston KJ, Jirsa VK, Bernard C. A systematic framework for functional connectivity measures. *Front Neurosci*. 2014 Dec 9;8:405.
10. Badier JM, Bartolomei F, Chauvel P, **Bénar CG**, Gavaret M. Magnetic source imaging in posterior cortex epilepsies. *Brain Topogr*. 2015 Jan;28(1):162-71
11. Liégeois-Chauvel C, **Bénar C**, Krieg J, Delbé C, Chauvel P, Giusiano B, Bigand E. How functional coupling between the auditory cortex and the amygdala induces musical emotion: A single case study. *Cortex*. 2014 Jun 16

12. Becker H, Albera L, Comon P, Haardt M, Birot G, Wendling F, Gavaret M, **Bénar CG**, Merlet I. EEG extended source localization: tensor-based vs. conventional methods. *Neuroimage*. 2014 Aug 1;96:143-57.
13. Comon P, Haardt M, Birot G, Wendling F, Gavaret M, **Bénar CG**, Merlet I. EEG extended source localization: Tensor-based vs. conventional methods. Becker H, Albera L, *Neuroimage*. 2014 Aug 1;96:143-57.
14. Gavaret M, Badier JM, Bartolomei F, **Bénar CG**, Chauvel P. MEG and EEG Sensitivity in a Case of Medial Occipital Epilepsy. *Brain Topography* 2014 Jan;27(1):192-6.
15. Birot G, Kachenoura A, Albera L, **Bénar C**, Wendling F. Automatic detection of fast ripples. *J Neurosci Methods*. 2013 Mar 15;213(2):236-49.
16. Leleux P, Badier JM, Rivnay J, **Bénar C**, Hervé T, Chauvel P, Malliaras GG. Conducting Polymer Electrodes for Electroencephalography. *Adv Healthc Mater*. 2013 Sep 19.
17. Morillon B, Liégeois-Chauvel C, Arnal LH, **Bénar CG**, Giraud AL. Asymmetric function of theta and gamma activity in syllable processing: an intra-cortical study. *Front Psychol*. 2012;3:248.
18. Bettus G, Ranjeva JP, Wendling F, Bénar CG, Confort-Gouny S, Régis J, Chauvel P, Cozzone PJ, Lemieux L, Bartolomei F, Guye M. Interictal functional connectivity of human epileptic networks assessed by intracerebral EEG and BOLD signal fluctuations. *PLoS One*. 2011;6(5):e20071.
19. Blanchard S, Papadopoulou T, Bénar CG, Voges N, Clerc M, Benali H, Warnking J, David O, Wendling F. Relationship between flow and metabolism in BOLD signals: insights from biophysical models. *Brain Topogr*. 2011 Mar;24(1):40-53.
20. Maillard L., Barbeau E, Baumann C, Koessler L, **Bénar C**, Chauvel P, Liégeois-Chauvel C From Perception to Recognition Memory: Time Course and Lateralization of Neural Substrates of Word and Abstract Picture Processing. *J Cogn Neurosci*. 2010 Feb 10. [Epub]
21. Koessler L, **Bénar CG**, Maillard L, Badier JM, Vignal JP, Bartolomei F, Chauvel P, Gavaret M, Source localization of ictal epileptic activity investigated by high resolution EEG and validated by SIEEG *Neuroimage*,. 2010 Jun;51(2):642-53.
22. Roger C, **Bénar CG**, Vidal F, Hasbroucq T, Burle B. Rostral Cingulate Zone and correct response monitoring: ICA and source localization evidences for the unicity of correct- and error-negativities. *Neuroimage*. 2010 May 15;51(1):391-403
23. Trébuchon-Da Fonseca A, **Bénar CG**, Bartoloméi F, Régis J, Démonet JF, Chauvel P, Liégeois-Chauvel C. Electrophysiological study of the basal temporal language area: a convergence zone between language perception and production networks. *Clin Neurophysiol*. 2009 Mar;120(3):539-50.
24. Kobayashi E, Bagshaw AP, **Bénar CG**, Aghakhani Y, Andermann F, Dubeau F, Gotman J. Temporal and extratemporal BOLD responses to temporal lobe interictal spikes. *Epilepsia*. 2006 Feb;47(2):343-54.
25. Gotman J, Kobayashi E, Bagshaw AP, **Bénar CG**, Dubeau F. Combining EEG and fMRI: a multimodal tool for epilepsy research. *J Magn Reson Imaging*. 2006 Jun;23(6):906-20.
26. Aghakhani Y, Kobayashi E, Bagshaw AP, Hawco C, **Bénar CG**, Dubeau F, Gotman J. Cortical and thalamic fMRI responses in partial epilepsy with focal and bilateral synchronous spikes. *Clin Neurophysiol*. 2006 Jan;117(1):177-91.
27. Grova C, Daunizeau J, Lina JM, **Bénar CG**, Benali H, Gotman J. , Evaluation of EEG localization methods using realistic simulations of interictal spikes. *Neuroimage*. 2006 Feb 1;29(3):734-53.
28. Bagshaw AP, Hawco C, **Bénar CG**, Kobayashi E, Aghakhani Y, Dubeau F, Pike GB, Gotman J. Analysis of the EEG-fMRI response to prolonged bursts of interictal epileptiform activity. *Neuroimage*. 2005;24(4):1099-112.

29. Gotman J, **Béнар CG**, Dubeau F. Combining EEG and fMRI in Epilepsy: Methodological Challenges and Clinical Results. *J Clin Neurophys*, 2004 Jul-Aug;21(4):229-40.
30. Bagshaw AP, Aghakhani Y, **Béнар CG**, Kobayashi E, Hawco C, Dubeau F, Pike GB, Gotman J. EEG-fMRI of focal epileptic spikes: analysis with multiple haemodynamic functions and comparison with gadolinium-enhanced MR angiograms. *Human Brain Mapping*, 2004;22(3):179-92.
31. Aghakhani Y, Bagshaw AP, **Béнар CG**, Hawco C, Andermann F, Dubeau F, Gotman J. fMRI Activation during Spike and Wave Discharges in Idiopathic Generalized Epilepsy. *Brain* 2004;127(Pt 5):1127-44.
32. Kang JK, **Béнар C**, Al-Asmi A, Khani YA, Pike GB, Dubeau F, Gotman J. Using patient-specific hemodynamic response functions in combined EEG-fMRI studies in epilepsy. *Neuroimage* 2003 Oct;20(2):1162-70.
33. Al-Asmi A, **Béнар CG**, Gross DW, Khani YA, Andermann F, Pike B, Dubeau F, Gotman J. fMRI Activation in Continuous and Spike-triggered EEG-fMRI Studies of Epileptic Spikes. *Epilepsia* 2003;44(10):1328-39.