

# CURRICULUM VITAE

**Name:** Jorge Javier Riera Díaz

**Nationality:** Cuban

**Birth date:** September 21<sup>st</sup>, 1965

**Address (Private):** 9619 FontaineBleau Blvd. Apt. 305, Miami FL 33172

Mobile: 1 (305) 803 7114

## Associate Professor

Department of Functional Brain Imaging

The Institute of Development, Aging and Cancer, Tohoku University

4-1 Seiryochō, Aobaku, Sendai 980-8575, JAPAN

TEL/FAX +81-22-7178468

Office email: [riera@idac.tohoku.ac.jp](mailto:riera@idac.tohoku.ac.jp)

Personal email: [riera\\_jorge@hotmail.com](mailto:riera_jorge@hotmail.com)

## Visiting Professor

Department of Biomedical Engineering

College of Engineering and Computing, Florida International University

10555 West Flagler Street, Miami, Florida 33174, USA

TEL: +1-305-3482522

Office email: [jrieradi@fiu.edu](mailto:jrieradi@fiu.edu)

## ACADEMIC STUDIES

**B. Sc. in Physics.** University of Havana, Havana, Cuba

*Entrance:* September, 1983, *Graduate:* July, 1988

Dissertation: Quantitative Analysis of the Propagation of Nervous Impulse by the Fiber

**M. Sc. Degree.** Neurophysics (Cuban Neuroscience Center, CNC) (1995)

### *Credits:*

University of Havana, Havana, Cuba

National Center for Scientific Researches, Havana, Cuba

International Centre for Theoretical Physics (ICTP), Trieste, Italy

**Ph.D. in Physics.** University of Havana, Havana, Cuba

*Graduate:* March 15, 2000

Dissertation: Brain Electric Tomography: the Solution of EEG/MEG Forward and Inverse Problems based on a New Approach.

# AWARDS

1. 1985. **Silver Medal** in the *1st Cuban Mathematics, Physics and Chemistry Olympic Games*, Havana, Cuba
2. Graduate student **prize** for excellence in teaching (Faculty of Physics, Havana University, 1988)
3. 1992. Award for the work "Frequency Domain Models for EEG" granted by the Cuban Academy of Sciences, Havana, Cuba
4. 1993. Award for the work "Brain Electromagnetic Tomography: a High Resolution Method" granted by the Scientific Board of the Cuban National Forum for Science and Technology
5. 1995-1998. **Junior Associate** of the International Centre for Theoretical Physics (ICTP), Trieste, Italy
6. 1995. Junior Award for the Fourth International Brain Research Organization (IBRO), World Congress of Neuroscience, Kyoto, Japan
7. 1997. Award for the work "Statistic 3D dimensional Map of the Spectrum of the EEG generators" granted by the Cuban Academy of Sciences, Havana, Cuba  
**Special Award:** Ministry of Science, Technology and Environment, Cuba "CITMA"
8. 1999. Award for the work "Statistical Identification of the Nonlinear Brain Dynamic in Normal and Epileptic Subjects" granted by the Cuban Academy of Sciences, Havana, Cuba  
This work received the "**most original**" award granted by the Ministry of Superior Education
9. 2000. Award for the work "Statistical Methods to compare Topographics and Tomographics Maps of the Brain's Electrical Activity" granted by the Cuban Academy of Sciences, Havana, Cuba

# PATENTS

## **Method and system for three dimensional tomography of activity and connectivity of brain and heart electromagnetic waves generators**

*Authors: Valdés P., Riera J., Bosch J., Biscay R., González S. Grave de Peralta R., Pascual R.*

**ASSIGNEES:** Centro de Neurociencias de Cuba, Cuba

**Priority Date:** March 15, 1991

Oficina Cubana de la Propiedad Industrial

Art. 81 European Patent Office. No. 92400595.2

U.S No. 5307807

## **System and Methods for the tomography of the primary electric current of the brain and the heart.**

*Authors: Valdés P., Riera J., Bosch J., Aubert E., Virue T., Morales F., Trujillo N., Fuentes M.E., Soler J.*

**ASSIGNEES:** Centro de Neurociencias de Cuba, Cuba

**Priority Date:** August 22, 1997

Oficina Cubana de la Propiedad Industrial, Certificado No. CU22550

Patent Cooperation Treaty (PCT). WO 99/10816.

OPIC, Canada. (A1) 2301712

US No. 7092748 B2

Japan P2001-514031A

European Patent Office (EPO): EP 1005677B1

## **A mini-cap for simultaneous EEG and fMRI recording in rodents.**

*Authors: Riera, J., Sumiyoshi, A., Kawashima, R.*

小動物用の脳測定用電極ユニットとそれを用いた装置

**ASSIGNEES:** Tohoku University, Japan

**Priority Date:** April 21, 2010

Hirayama Kokusai Tokkyo Jimusho

Japanese patent, Appl. No: 2010-98320

PCT/JP2011/59876

## RESEARCH GRANTS

**Organization:** Brain Science Institute, RIKEN, Japan

**Title:** The developing of mathematical methods to study deep brain sources from MEG single trials

**Principal Investigator:** Jorge Riera

**Total amount:** 2,500,000 yens (27,000 USD)

**Research Period:** 1999-2000

**Organization:** Telecommunications Advancement Organization

**Program:** R&D promotion scheme for regional proposals, Japan

**Title:** A state-space model of the hemodynamic approach: non-linear filtering of BOLD signals in fMRI

**Principal Investigator:** Jorge Riera

**Total amount:** 4,300,000 yens (48,000 USD)

**Research Period:** 2002-2003

**Organization:** Japan Society for the Promotion of Science (JSPS)

**Program:** KIBAN KENKYU (B)

**Title:** Brain activation during comprehension of Japanese words and sentences

**Principal Investigator:** Tadao Miyamoto, Tohoku University

Co-Investigators: Jorge Riera

**Total amount:** 11,927,000 yens (131,000 USD)

**Research Period:** 2007-2009

**Organization:** Japan Society for the Promotion of Science (JSPS)

**Program:** Japan-Canada Join Health Research Program, Canadian Institute of Health Research (CIHR)

**Title:** The neuroarchitectonic determinants of EEG recordings

**Principal Investigator:** Jorge Riera (Japan) and Alan Evans (Canada)

**Total amount:** 4,100,000 yens (45,000 USD) & 60,000 CDN

**Research Period:** 2008-2010

**Organization:** IDAC, Tohoku University

**Program:** Internal Supportive Funding

**Title:** a) 麻酔下ラットにおける自発的脳活動のイメージング, b) ラットにおける脳活動の確立微分代数ダイナミカルモデリング, c) EEG/ERPの神経解剖学的決定要因

**Principal Investigator:** Jorge Riera

**Total amount:** 1,300,000 yens (15,000 USD)

**Research Period:** 2008-2009

**Organization:** Japan Society for the Promotion of Science (JSPS)

**Program:** KIBAN KENKYU (B)

**Title:** Develop of an auditory cortical implant by using 3D current stimulation with feed-back control

**Principal Investigator:** Jorge Riera

**Total amount:** 16,950,000 yens (210,000 USD)

**Research Period:** 2011-2013

**Organization:** Japan Science and Technology (JST)

**Program:** PCT Patent Application (S2010-0620-N0)

**Title:** 小動物用の脳測定用電極ユニットとそれを用いた測定装置

**Principal Inventor:** Jorge Riera

**Total amount:** 500,000 yens (5,800 USD)

**Research Period:** 2011

# POSTGRADUATE STUDIES

- 1.- Biological Models. Including: Compartment Models, Prey-Depredator Models and Chaos in Biology (1988, **Havana University**)
- 2.- Abstract Data Structure (1988, **Cuban Neuroscience Center, CNC**)
- 3.- Univariate Statistics (1989, **CNC**)
- 4.- Neurophysiology (1989, **CNC**)
- 5.- Cellular Physiology (1989, **CNC**)
- 6.- Multivariate Statistics (1990, **CNC**)
- 7.- Advanced Programming in PASCAL Language (1992, **CNC**)
- 8.- Non-linear Dynamics (1993, **Havana University**)
- 9.- College on Neurophysics. Neural Correlates of Behavior, Development, Plasticity and Memory (1990, **International Centre for Theoretical Physics, ICTP, Trieste, Italy**)
- 10.- College on Neurophysics. Object Recognition by Man and Machine. (1992, **ICTP, Trieste, Italy**)
- 12.- Principle of Maximum Entropy and Applications. Including: Process Modeling and Inverse Problems (1993, **Havana University**)
- 13.- Antonio Borsellino College on Neurophysics. The Processing and Use of Sensory Information in Biological System (1995, **ICTP, Trieste, Italy**)
- 14.- Symposium on “Dynamic Properties of Receptive Fields and Plasticity of Processing System” (May 1995, **ICTP, Trieste, Italy**)
- 15.- IBRO Course in Neuroscience (2001, **Havana University, Medical School**).  
Instructors: M Estrada (Cuba), H Arechiga (Mexico), A Gibb (UK), UJ McMahan (USA), JG Nicholls (Italy), W Stühmer (Germany)

**Programming Languages:** MATLAB, PASCAL

## SCIENTIFIC ASSOCIATIONS

1. Cuban Society for Clinical Neurophysiology (1996-1998)
2. The Caribbean Brain Research Organization (CARIBRO) (1994-1995)
3. Cuban Society of Physics (1994-1995)
4. Cuban Society of Bio-Engineering (1997-1998)
5. New York Academy of Science (1998-1999)
6. IEEE Member. Biomedical Engineering (1999-2001)
7. IEEE Member. Signals Processing (1999-2001)
8. Latino-American Society of Neurophychology (SLAN) (1999-2000)
9. International Federation of Medical and Biological Engineering  
(*IFMBE NeuroEngineering Working Group*)
10. Human Brain Mapping Organization (2002-2007)
11. American Physiological Society (2006-Present). **Regular Member**
12. Japanese Society for Neuroscience (2006-Present). **Regular Member**
13. Brain Connectivity Workshop Series. *Scientific Board* (2006-Present)

## PUBLISHERS

Journal of Integrative Neuroscience (World Scientific)

**Associate Editor** (Neuroimaging) (2010-Present)

Frontiers in Neuroscience (Neuroenergetics) - **Review Editor**

Frontiers in Neuroscience (Neuroinformatics) - **Review Editor**

PLoS ONE - **Editorial Board**

### Journal Reviewer

- NeuroImage
- PLoS Computational Biology
- Journal of Computational and Applied Mathematics
- Journal of Neurophysiology
- Neural Computation
- Cerebral Cortex
- The Journal of Neuroscience

## PUBLICATIONS

1. **Riera J.**, Hernández J.L. Quantitative analysis of the propagation of the nervous impulse by the fiber. *Revista CENIC Ciencias Biológicas*, 19, 3, 1988.
2. Valdés P., Bosch J., Grave R., Hernández J., **Riera J.**, Pascual R. Biscay R. Frequency domain models of the EEG. *Brain Topography*, 4, 4, 309-319, 1992.
3. Carballo J.A., **Riera J.**, Biscay R., Valdés P. Model parameters estimation when the evoked potential recordings are affected by a random scale factor. *Int. J. Biomed. Comput.*, 30, 71-87, 1992.
4. **Riera J.**, Carballo J.A., Biscay R., Valdés P. The estimation of event related potentials affected by random shifts and scalings. *Int. J. Biomed. Comput.*, 38, 109-120, 1995.
5. Harmony T., Fernández-Bouzas A., Marosi E., Fernández T., Valdés P., Bosch J., **Riera J.**, Bernal J., Rodríguez M., Reyes A., Silva J., Alonso M., Sánchez-Cabrera J.M. Frequency source analysis in patients with brain lesions. *Brain Topography*, 8, 2, 109-117, 1995.
6. Biscay R., Jiménez J.C., **Riera J.**, Valdés P. Local linearization method for numerical solution of stochastic differential equations. *Ann. Inst. Statist. Math.*, 48, 4, 631-644, 1996.
7. **Riera J.**, Fuentes M.E., Aubert E., Díaz D. Solving the forward problem: Spherical vs. realistic electric lead field. *Biomedizinische Technik*, Band 42, Ergänzungsband 1, 223-226, 1997.
8. **Riera J.**, Fuentes M.E., Valdés P., Ohárriz Y. Theoretical basis of the EEG spline inverse solutions for a spherical head model. *Biomedizinische Technik*, Band 42, Ergänzungsband 1, 219-222, 1997.
9. **Riera J.**, Valdés P., Fuentes M.E., Ohárriz Y. Explicit Backus and Gilbert EEG inverse solution for spherical symmetry. *Biomedizinische Technik*, Band 42, Ergänzungsband 1, 216-218, 1997.
10. **Riera J.**, Fuentes M.E. Electric lead field for a piece-wise homogeneous volume conductor model of the head. *IEEE Trans. Biomed. Eng.*, 45, 6, 746-753, 1998.
11. Jiménez J.C., Valdés P., Rodríguez L.M., **Riera J.**, Biscay R. Computing the



- noise covariance matrix of the local linearization scheme for the numerical solution of stochastic differential equations. [Appl. Math. Lett.](#), 11, 1, 19-23, 1998.
12. Moulden D.J.A., Picton T.W., Meiran N., Stuss D.T., **Riera J.**, Valdes-Sosa P. W-19. Event-related potentials when switching attention between task-sets. [Brain and Cognition](#), 37, 1, 186-190, 1998.
  13. Mueller M., Picton T., Valdés P., **Riera J.**, Teder-Salejarvi W.A., Hillyard S. Effects of spatial selective attention on the steady-state visual evoked potentials in the 20-28 Hz range. [Cognitive Brain Research](#), 6, 249-261, 1998.
  14. **Riera J.**, Fuentes M.E., Valdés P., Ohárriz Y. EEG distributed inverse solutions for a spherical head model. [Inverse Problems](#), 14, 4, 1009-1019, 1998.
  15. Valdés P., Jiménez J.C., **Riera J.**, Biscay R., Ozaki T. Nonlinear EEG analysis based on a neural mass model. [Biol. Cybern.](#), 81, 5/6, 415-424, 1999.
  16. Baillet S., **Riera J.**, Mangin J.F., Garnero L., Aubert E. Evaluation of inverse methods and head models for EEG source localization using a human skull phantom. [Phys. Med. Biol.](#), 46, 1, 77-96, 2001.
  17. Bosch Bayard J., Valdes Sosa P., Virues Alba T., Aubert Vazquez E., Roy John E., Harmony Baillet T., **Riera J.**, Trujillo Barreto N. 3D statistical parametric mapping of EEG source spectra by means of variable resolution electromagnetic tomography (VARETA). [Clinical Electroencephalography](#), 32, 2, 47-61, 2001.
  18. Torres R, Galan L, Biscay L, **Riera J.** Probabilistic model for category production. [Revista CENIC. Ciencias Biologicas](#), 33, 3, 133-140, 2002.
  19. Miura N., Iwata K., Watanabe J., Sugiura M., Akitsuki Y., Sassa Y., Ikuta N., Okamoto H., Watanabe Y., **Riera J.**, Maeda Y., Matsue Y., Kawashima R. Cortical activation during reading aloud of long sentences: an fMRI study. [Neuroreport](#), 14, 12, 1563-1566, 2003.
  20. **Riera J.**, Watanabe J., Kazuki I., Naoki M., Aubert E., Ozaki T., Kawashima R. A state-space model of the hemodynamic approach: Non-linear filtering of BOLD signals. [NeuroImage](#), 21, 2, 547-567, 2004.
  21. **Riera J.**, Bosch J., Yamashita O., Kawashima R., Sadato N., Okada T., Ozaki T. fMRI activation maps based on the NN-ARx model. [NeuroImage](#), 23, 2, 680-697, 2004.

22. **Riera J.**, Aubert E., Iwata K., Kawashima R., Wan X., Ozaki T. Fusing EEG and fMRI based on a bottom-up model: Inferring activation and effective connectivity in neural masses. [Phil. Trans. R. Soc. Lond. B.](#), 360, 1457, 1025-1041, 2005.
23. Miura N., Watanabe J., Iwata K., Sassa Y., **Riera J.**, Tsuchiya H., Sato S., Horie K., Takahashi M., Kitamura M., Kawashima R. Cortical Activation during reading of ancient versus modern Japanese texts: fMRI study. [NeuroImage](#), 26, 2, 426-431, 2005.
24. Wan X., Iwata K., **Riera J.**, Kitamura M., Kawashima R. Artifact reduction for EEG/fMRI recordings: Adaptive FIR reduction of imaging artifact. [Clinical Neurophysiology](#), 117, 681-692, 2006.
25. Wan X., Iwata K., **Riera J.**, Ozaki T., Kitamura M., Kawashima R. Artifact reduction for EEG/fMRI recordings: Nonlinear reduction of ballistocardiogram artifacts. [Clinical Neurophysiology](#), 117, 668-680, 2006.
26. **Riera J.**, Wan X., Jimenez J.C., Kawashima R. Nonlinear local electro-vascular coupling. Part I: A theoretical model. [Human Brain Mapping](#), 27, 896-914, 2006.
27. **Riera J.**, Valdés P.A., Tanabe K., Kawashima R. A theoretical formulation of the electrophysiological inverse problem: The spherical head model. [Phys. Med. Biol.](#), 51, 1737-1758, 2006.
28. Wan X., **Riera J.**, Iwata K., Takahashi M., Wakabayashi T., Kawashima R. The neural basis of the hemodynamic response nonlinearity in human primary visual cortex: Implications for neurovascular coupling mechanism. [NeuroImage](#), 32, 616-625, 2006 (*Rapid Communication*).
29. Poznanski R., **Riera J.** fMRI Models of Dendritic and astrocytic networks. [J. Integrative Neuroscience](#), 5, 2, 273-326, 2006. (**Review**)
30. Yokoyama S., Miyamoto T., **Riera J.**, Kim J., Akitsuki Y., Iwata K., Yoshimoto K., Horie K., Sato S., Kawashima R. Cortical mechanisms involved in the processing of verbs: An fMRI study. [Journal of Cognitive Neuroscience](#), 18, 8, 1304-1313, 2006.
31. Sakai Y., Iwata K., **Riera J.**, Wan X., Yokoyama S., Shimoda Y., Kawashima R., Yoshimoto K., Koizumi M. An ERP study of the integration process between a noun and a numeral classifier: Semantic or syntactic? [Cognitive Studies: Bulletin of the Japanese Cognitive Science Society](#), 13, 3, 443-454, 2006.

32. **Riera J.**, Jimenez J.C., Wan X., Kawashima R., Ozaki T. Nonlinear local electro-vascular coupling. Part II: From data to neural masses. [Human Brain Mapping](#), 28, 335-354, 2007.
33. Wan X., Sekiguchi A., Yokoyama S., **Riera J.**, Kawashima R. Electromagnetic source imaging: Backus-Gilbert resolution spread function-constrained and functional MRI-guided spatial filtering. [Human Brain Mapping](#), 29, 627-643, 2008.
34. **Riera J.**, Schousboe A., Waagepetersen H.S., Howarth C., Hyder F. The micro-architecture of the cerebral cortex: Functional neuroimaging models and metabolism. [NeuroImage](#), 40, 1436-1459, 2008 (**Invited Review**)
35. Stephan K.E., **Riera J.**, Deco G., Horwitz B. The brain connectivity workshops: Moving the frontiers of computational systems neuroscience. [NeuroImage](#), 42, 1-9, 2008.
36. Yokoyama S., Kim J., Uchida S., Miyamoto T., Yoshimoto K., **Riera J.**, Yusa N., Kawashima R. Left middle temporal deactivation caused by insufficient second language word comprehension by Chinese-Japanese bilinguals. [Journal of Neurolinguistics](#) 22, 476-485, 2009.
37. Homma N., Kato S., Goto T., Sakai M., Sugita N., Yoshizawa M., Yomogida Y., Sassa Y., Sugiura M., **Riera J.**, Kawashima R. Human brain activities related to manual control of nonholonomic systems: An fMRI study. [IJACE International Journal of Advanced Computed Engineering](#), 2, 2, 129-133, 2009.
38. **Riera J.**, Ogawa T., Hatanaka R., Goto T., Sumiyoshi A., Enjieu Kadji H., Nakauchi S., Kawashima R. Concurrent observations of astrocytic  $Ca^{2+}$  activity and multisite extracellular potentials from an intact cerebral cortex. [J. Biophotonics](#) 3, 3, 147-160, 2010.
39. **Riera J.**, Sumiyoshi A. Brain oscillations: Ideal scenery to understand the neurovascular coupling. [Current Opinion in Neurology](#) 23(4), 374-381, 2010. (**Review**)
40. Goto T., Hatanaka R., Ogawa T., Sumiyoshi A., **Riera J.**, Kawashima R. An evaluation of the conductivity profile in the barrel cortex of Wistar rats. [J. Neurophysiol.](#) 104, 3388-3412, 2010. (**corresponding author: Jorge Riera**)
41. Bosch J., **Riera J.**, Biscay R., Wong K.F.K., Galka A., Yamashita O., Sadato N., Kawashima R., Aubert E., Rodriguez R., Valdes P., Miwakeichi F., Ozaki T. Spatio-temporal correlations from fMRI time series based on the NN-ARx model. [Journal of Integrative Neuroscience](#) 9(4), 381-406, 2010.

(corresponding author: **Jorge Riera**)

42. **Riera J.**, Valdes-Sosa P. Mesoscale in neuroimaging: creating bridges between the microscopic and system levels. [Journal of Integrative Neuroscience](#) 9(4), v-vii, 2010. (*Special Issue*)
43. Sumiyoshi, A., **Riera J.**, Ogawa T., Kawashima R. A Mini-Cap for simultaneous EEG and fMRI recording in rodents. [NeuroImage](#) 54, 1951-1965, 2011. (**corresponding author: Jorge Riera**)
44. Crivaro M., Enjieu-Kadji H., Hatanaka R., Nakauchi S., Bosch J., Judin J., **Riera J.**, Kawashima R. Multi-photon fluorescent images with a spatially varying background signal: A ML deconvolution method. [Journal of Microscopy](#), 242, Pt 3, 311-324, 2011. (**corresponding author: Jorge Riera**)
45. **Riera J.**, Hatanaka R., Uchida T., Ozaki T., Kawashima R. Quantifying the uncertainty of spontaneous  $Ca^{2+}$  oscillations in astrocytes: Particulars of Alzheimer's disease. [Biophysical Journal](#), 101(3), 554-564, 2011.
46. Ogawa T., **Riera J.**, Goto T., Sumiyoshi A., Nonaka H., Jerbi K., Bertrand O., Kawashima R. Dissimilar schemes for a sparse and heterogeneous codification of sound attributes in the primary auditory cortex of rats. [The Journal of Neuroscience](#) 31(41):14639-14653, 2011. (**corresponding author and designed research: Jorge Riera**)
47. Valdés-Hernández P.A., Sumiyoshi A., Nonaka H., Haga R., Aubert-Vásquez E., Iturria-Medina Y., **Riera J.**, Kawashima R. An in vivo MRI template set for morphometry, tissue segmentation and fMRI localization in rats. [Frontiers in Neuroscience \(Neuroinformatics\)](#), (*in press*, doi: 10.3389/fninf.2011.00026), 2011 (**corresponding author: Jorge Riera**)
48. **Riera J.**, Hatanaka R., Ozaki T., and Kawashima R. Modeling the spontaneous  $Ca^{2+}$  oscillations in astrocytes: Inconsistencies and usefulness. [Journal of Integrative Neuroscience](#), (*in press*), 2011.
49. **Riera J.**, Ogawa T., Goto T., Sumiyoshi A., Nonaka H., Evans A., Miyakawa H., Kawashima R. Pitfalls in the dipolar model for the neocortical EEG sources. [Journal of Neurophysiology](#), (*revision*), 2011.
50. Wang K., **Riera J.**, Enjieu Kadji H., Goto T., Kawashima R. The role of the extracellular impedance profiles in the compartmental models for neurons: a unified formalism for recording and stimulation. [Neural Computation](#), (*revision*), 2011. (**corresponding author: Jorge Riera**)

51. Aizawa-Kohama M., Endo T., Kitada M., Wakao S., Sumiyoshi A., Matsuse D., Kuroda Y., **Riera J.**, Kawashima R., Tominaga T., Dezawa M. Transplantation of bone marrow-derived neural precursor cells ameliorates deficits in a rat model of complete spinal cord transection. [Cell Transplantation](#), (*submitted*), 2011.
52. Saito A., Mekawy M.M., Sumiyoshi A., **Riera J.**, Shimizu H., Kawashima R., Tominaga T. Noninvasive targeting delivery and in vivo MR imaging for live apoptosis after cerebral ischemia with magnetic nanoparticle. [PNAS](#), (*submitted*), 2011.
53. Goto T., **Riera J.**, Kawashima R. An electrophysiological microscope for fast assessments to the activity of cortical networks in vivo: from population inputs to single unit outputs. [Nature Methods](#), (*submitted*), 2011. (**corresponding author: Jorge Riera**)

## **Final Preparation Stage**

1. **Riera J.**, Hatanaka R., Uchida T., Mekawy M.M., Nonaka H., Kawashima R. Spontaneous  $\text{Ca}^{2+}$  oscillations in hippocampal astrocytes: Aging effect and main signatures of the Alzheimer disease in fMRI resting states. [Nature](#), 2011.
2. **Riera J.**, Ogawa T., Goto T., Sumiyoshi A., Jimenez J.C., Biscay R.J., Macias F.D., Boucher M., Carbonell F., Evans A., Kawashima R. A dynamic EEG inverse solution based on a biophysical model for the principal cells in the neocortex. [Phys. Med. Biol.](#), 2011.
3. **Riera J.**, Goto T., Miyakawa H., Destexhe A., Bedard C., Aonishi T., Monai H. Monopoles in the brain: their impact on EEG and MEG source models. [NeuroImage, Comments and Controversy](#), 2011.

## BOOK CHAPTERS

1. Casanova R., Valdés P., Garcia F., Aubert E., **Riera J.**, Korin W., Lins O. Frequency Domain Distributed Inverse Solutions. In: *Advances in Biomagnetism Research*, Aine, C., Okada, Y., Stroink, G., Swithenby, S., and Wood, C. (Eds.), Springer-Verlag, New York, Vol. I, 189-191, 2000.
2. Valdés P., **Riera J.**, Casanova R. Spatio Temporal Distributed Inverse Solutions. In: *Advances in Biomagnetism Research*, Aine, C., Okada, Y., Stroink, G., Swithenby, S., and Wood, C. (Eds.), Springer-Verlag, New York, Vol. I, 377-380, 2000.
3. **Riera J.**, Aubert E., Valdés P., Casanova R., Lins O. Discrete Spline Electric-Magnetic Tomography (DSPET) based on Realistic Neuroanatomy. In: *Advances in Biomagnetism Research*, Aine, C., Okada, Y., Stroink, G., Swithenby, S., and Wood, C. (Eds.), Springer-Verlag, New York, Vol. I, 326-329, 2000.
4. 岩田一樹, ホルヘ・リエラ, 川島隆太 (2005) 脳高次機能イメージングとその将来. 脳の形態と機能 (福田寛編). 新興医学出版社, pp 29-39.
5. **Riera J.** What can be observed from functional neuroimaging? In: *Complex Medical Engineering*. (Eds: JL Wu, K Ito, S Tobimatsu, T Nishida, H Fukuyama). Springer, 313-333, 2007.

## CONFERENCE PROCEEDINGS

- Morenza L., Torres R., Chivas F., **Riera J.**, Lara I., Biscay R., Galan L., Santaya M. and Castellanos B. Natural Categories During Ontogeny: Relevance for the Structure of Semantic Memory. [Int. J. Neuroscience](#) 49, 221-302, 1989.
- Riera J.**, Carballo J., Biscay R., Valdés P. ERP Components Estimation. [Int. J. Psychophysiol.](#) 11, 1, 69, 1991.
- Muller M.M., Valdes-Sosa M., Bosch J., **Riera J.**, Bobes M.A. Eliciting Induced Gamma Band Responses with the Movement of a Coherent Stimulus in Humans. [Psychophysiology](#) 31, Suppl. 1, 69-70, 1994.
- Díaz D., Martínez J.M., **Riera J.** Electric Field Induced Inside a Sphere due to Radial Single Coil Magnetic Stimulation. [NeuroImage](#) 7, 4, S633, 1998.
- Harmony T., Fernández-Bouzas A., Aubert E., Valdés P., Casanova R., Silva J., Fernández T., García F., **Riera J.**, Martínez M., Barrios F., Rojas R., Quiroz O. Volumetric Anatomically Restricted Distributed Inverse Solution of Auditory and Visual N1 Components. [NeuroImage](#) 5, 4, Part II, S432, 1997.
- Valdés P., Picton T., Trujillo N., Bosch J., Aubert E., **Riera J.**, Biscay R., Carbonell F., Barroso E., Fernández A., Evans A. Constraining EEG-MEG Source Imaging with Statistical Neuroanatomy. [NeuroImage](#) 7, 4, S635, 1998.
- Riera J.**, Valdes P., Aubert E., Evans A., Worley K. An Analysis of Brain Sources and Connectivity Patterns Associated with Alpha Rhythm Reactivation in Human. [NeuroImage](#) 13, 6, Suppl. 1, Part 2, 233, 2001.
- Lins O.G., Picton T.W., Choi V., Valdez-Sosa P., **Riera J.**, Casanova R. From Sensors to Sources. [NeuroImage](#) 3, 1, Suppl. 1, S161, 1996.
- Wan X., Iwata K., **Riera J.**, Kawashima R., Kitamura M. Step for Fusion of Electroencephalogram and Functional Magnetic Resonance Imaging: F131. [J. Clinical Neurophysiology](#) 22, 5, 363, 2005.
- Riera J.**, Jimenez J.C., Ozaki T., Kawashima R., Wan X.H. Nonlinear Local Neurovascular Coupling in the Cerebral Cortex. [Neuroscience Research](#) 58, S129-S129, Suppl. 1, 2007

- Bosch Bayard J., **Riera J.**, Biscay Lirio R., Wong K., Yamashita O., Valdés Sosa P.A., Ozaki T. Spatio-Temporal Correlations in fMRI Time Series: The Innovation Approach. [Clinical Neurophysiology](#) 119, 9, e137-e138, 2008.
- Riera J., Goto T., Enjieu-Kadji H., Ogawa T., Morito R., Kawashima R. The Micro-Architecture of the Cerebral Cortex: Its Impact on Functional Neuroimaging in Humans. [Clinical Neurophysiology](#) 119, 9, e107, 2008.
- Kato S., Goto T., Homma N., Yoshizawa M., Yomogida Y., Sassa Y., Sugiura M., **Riera J.**, Kawashima, R. fMRI Analysis of the Human Brain Activities During Manual Control of a Nonholonomic System. [Proceedings of the SICE Annual Conference](#), Article number 4654986, 1977-1980, 2008.
- Riera J, Ogawa T, Goto T, Sumiyoshi A, Nonaka H, Evans A, Kawashima R. Pitfalls in the Dipolar Model of the Neocortical EEG Sources. [Proceedings of the Second APSIPA Annual Summit and Conference](#), 964-968, 2010.



## TECHNICAL REPORTS

- Valdes P.A., Jimenez J.C., **Riera J.**, Biscay R., Ozaki, T. Nonlinear EEG Analysis based on a Neural Mass Model. *ISM Research Memorandum*, No. 652. The Institute of Statistical Mathematics, Tokyo, Japan, 1997.
- Baillet S., **Riera J.**, Mangin J.F., Garnero L. Evaluation of Inverse Methods and Head Models for EEG Source Localization using a Human Skull Phantom. *Technical Report* CNRS\_UPR640\_TIC\_1, LENA, Hôpital de la Salpêtrière, Paris, France, 1998.
- Riera J.**, Valdés P., Tanabe K. Properties of the Electric and Magnetic Lead Fields: Toward a Unified Spline Inverse Solution. *ISM Research Memorandum*, No. 761. The Institute of Statistical Mathematics, Tokyo, Japan, 2000.
- Riera J.**, Watanabe J, Kazuki I., Naoki M., Aubert E., Ozaki T., Kawashima R. A State-Space Model of the Balloon Approach: a Non-Linear Analysis of BOLD Signals. *ISM Research Memorandum*, No. 880. The Institute of Statistical Mathematics, Tokyo, Japan, 2003.
- Riera J.**, Bosch J., Yamashita O., Kawashima R., Sadato N., Okada T., Ozaki T. fMRI Activation Maps based on the NN-ARx Model. *ISM Research Memorandum*, No. 906. The Institute of Statistical Mathematics, Tokyo, Japan, 2004.
- Riera J.**, Aubert E., Iwata K., Kawashima R., Wan X., Ozaki T. Fusing EEG and fMRI based on a Bottom-Up Model: Inferring Activation and Effective Connectivity in Neural Masses. *ISM Research Memorandum*, No. 927. The Institute of Statistical Mathematics, Tokyo, Japan, 2004.
- Wan X., Iwata K., **Riera J.**, Kitamura M., Ozaki T., Kawashima R. Artifacts Reduction for EEG/fMRI Recordings. Part 1: Nonlinear Reduction of Ballistocardiogram Artifact. *ISM Research Memorandum*, No. 939. The Institute of Statistical Mathematics, Tokyo, Japan, 2005.
- Bosch-Bayard J., **Riera J.**, Biscay-Lirio R.J., Wong K.F.K., Yamashita O., Galka A., Sadato N., Kawashima R., Valdes-Sosa P., Miwakechi F., Ozaki T. Spatio-Temporal Correlations in fMRI Time Series: the Whitening Approach. *ISM Research Memorandum*, No. 1025, The Institute of Statistical Mathematics, Tokyo, Japan, 2007.

# TUTORIALS

**B.Sc. Thesis:** Analysis of X-ray Scattering in Computer Tomography. Jorge Luis Valdés. Faculty of Physics, Havana University, 1992.

**B.Sc. Thesis:** Modeling the Electrical Activity in the Thalamus-Cortical Loop. Liset Menéndez de la Prida. Faculty of Physics, Havana University, 1994.

**B.Sc. Thesis:** EEG Distributed Inverse Solutions for a Spherical Volume Conductor Model. Yakelin Ohárriz. Faculty of Physics, Havana University, 1997.

**M.Sc. Thesis:** The Electric Lead Field in the EEG Forward Problem. María Elena Fuentes Montero. Faculty of Physics, Havana University, 1997.

**M.Sc. Thesis:** Forward Problem for the Transcranial Magnetic Stimulation using a Realistic Geometry of the Head. José Manuel Martínez. Cuban Neuroscience Center, 1998.

**B.Sc. Thesis:** Two Different Ways to Solve the MEG Forward Problem. A comparative study. Abel Amaro Villarreal, Faculty of Physics, Havana University, 1999.

**PhD. Thesis:** Spatiotemporal Functional Imaging of the Human Brain by Simultaneous Electroencephalography and fMRI Recordings Xiaohong Wan, Tohoku University, 2006

**M.Sc. Thesis:** Deconvolution of Noisy Two-Photon Microscopy Images. Aalto University. School of Science and Technology. Faculty of Information and Natural Sciences. Marko Vito Petteri Crivaro, 2010.

**PhD. Thesis:** Simultaneous EEG and fMRI recordings in small animals. Tohoku University, Grad. School of Medicine. Akira Sumiyoshi, 2011.

**PhD. Thesis:** A study on the local neuro mass dynamics in the neocortex of rats. Tohoku University, Grad. School of Medicine. Takeshi Ogawa, 2011.

## TEACHING EXPERIENCES

**1984-1988:** Assisting Alumni of the Faculty of Physics, Havana University.

Instructing laboratory classes of Physics to students from faculties of Biology, Pharmacology, and Chemistry of the Havana University. In 1988, I received the graduate student prize for **excellence in teaching** from the dean of the Faculty of Physics, Havana University.

**1992-1997:** I was selected to teach “electromagnetism” to graduate students from the Medical School of Havana University, who had joined the specialty of **Clinical Neurophysiology**. I was a part of this teaching program for five years, from which hundreds of specialists have graduated and are now performing clinical practices in hospitals and private clinics worldwide.

**1997:** High level specialization program for scientists of the Cuban Scientific Pole. Classes: classic electrodynamics (**45 hours**), neurophysics (**20 hours**), digital signal processing (**20 hours**), and EEG/MEG direct and inverse problems (**15 hours**).

## **RESEARCH/EMPLOYMENT HISTORY**

**1985: Assistant Undergraduate Student.** Electrophysiological Laboratory, Institute for Brain Research, Havana, Cuba (Advisor: Jose Luis Hernandez Caceres). Performing Whole-Cell Patch Clamp in the Giant Neurons of *Zachrysia Guanensis* to Study Calcium Active Transport and Binding Mechanisms of Calmodulin. Recording LFP and Multiunit Activity from Rats undergoing Penicillin-Induced Epileptogenic Activity.

**1990: Junior Researcher.** Neurophysics Department, Cuban Neuroscience Center (CNC), Havana, Cuba. (Dr. Pedro Valdes). Modeling Brainstem Auditory Event Potentials to achieve an Automatic Classification of Infants with Hearing Disabilities.

**1995: Associate Researcher.** Neuroimage Laboratory, Neurophysics Department, CNC, Havana, Cuba. (Dr. Pedro Valdes). The development Novel Methods for the Solution of the EEG Forward and Inverse Problems.

**1996: Scientific Training.** Baycrest Centre for Geriatric Care. Institute Rotman, Toronto, Canada. (Dr. Terry Picton). The application of EEG Inverse Methods to study Individual Electrical Evoked Responses.

**1997-1998: CNRS Fellow.** Universite de Paris. Hospital Pitie-Salpêtrière. Unite de Psychophysiologie Cognitive. (Dr. Line Garnero). The solution of the EEG and MEG Forward Problems for Realistic Head Models based on the Electric and Magnetic Lead Field Formalism. The Analysis of the Feasibility of EEG Forward and Inverse Problems on the basis of a Skull Phantom.

**1998: Scientific Training.** The Institute of Statistics Mathematics, Tokyo, Japan. (Dr. Tohru Ozaki). The application of Local Linealization Method

to Solve Hodgking-Huxley Equations. The Estimation of Neuronal Electrophysiological Parameters based on a Kalman Filter Technique.

**1999-2000: Post-Doc Fellow.** RIKEN Brain Science Institute, Wakoshi, Saitama, Japan. (Dr. Andreas Ioannides). The Developing of Mathematical Methods to Study Deep Brain Sources from MEG Single Trials.

**2000-2001: Head of the Department of Neurophysics.**

Cuban Neuroscience Center, Havana, Cuba

Ave. 25 y 158, Cubanacan, Playa. Ciudad de La Habana, Cuba.

**P.O. Box:** 6412, 6414

**Telephone:** (53) (7) 271-8724, **Fax:** (53) (7) 208-6321

**2002-2003: Post-Doc TAO Fellow.** Telecommunications Advancement Organization. The New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan (Prof. Ryuta Kawashima). The development of Methods for the Fusion of fMRI and functional Near-Infrared Spectroscopy in Humans.

**2003-2004: Post-Doc COE Fellow.** 21st Century Center of Excellence Program in Humanities. The New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan (Prof. Ryuta Kawashima). The Integration of EEG and fMRI Modalities to Study Human Brain Activity.

**2004-: Associate Professor.** The New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan.

**2006-: Associate Professor.** The Institute of Development, Aging and Cancer (IDAC), Tohoku University, Sendai, Japan.

**2007-: Head of Neuronal Mass Dynamics (NMD) group.** Functional Brain Imaging Department, IDAC, Tohoku University, Sendai, Japan.

**Current Group Members:**

Postdocs (3)

PhD students (3)

Master Students (1)

Research Assistant (1)

Secretary (1)

***Current Experimental Techniques (in rodents):***

1- In vivo/vitro **two-photon** and **confocal imaging**

2- In vitro **whole-cell patch clamp**

3- In vitro **voltage sensitive dye imaging**

4- Acute/chronic electrophysiology with **microelectrode array**

5- Functional and structural **magnetic resonance imaging**

6- Miniaturized **Electroencephalogram (EEG)**

**2011-:** Visiting Professor. Department of Biomedical Engineering, College of Engineering and Computing, Florida International University, Miami, USA.

## INVITED LECTURES

1. **I Latin-American Congress for Application of the Informatics in Health.** Havana, Cuba, 1992.
2. **Fourth International Symposium of the International Society for Brain Electromagnetic Topography.** Havana, Cuba, 1993.
3. **First Regional Meeting of “The Caribbean Brain Research Organization”.** Havana, Cuba, 1994.
4. **Recent Advances in Statistical Research and Data Analysis.** Institute of Statistical Mathematics (Chairperson: Yoshihiko Ogata). Tokyo, Japan, 2000.
5. **Workshop on Statistical Problems of Human Brain Mapping.** (*Minicourses*: Co-organized by: Cuban Neuroscience Center, University of Havana and the Université Paris-Sud). Havana, Cuba, 2003.
6. **Brain Science Institute, RIKEN. Invited seminar.** Host: Dr. Yoko Yamaguchi, Lab. for Dynamics of Emergent Intelligence. Wako-shi, Japan, 2003.
7. **The Second International Forum on Language, Brain, and Cognition: Brain Imaging, Aphasiology, and Computational Modeling** (The Tohoku University 21st Century COE Program in Humanities). Sendai, Japan, 2003.
8. 東北大学 COE フェロー・大学院国際文化研究科/未来科学技術共同研究センター：脳データ処理学
9. **3<sup>rd</sup> Brain Connectivity Workshop.** Havana, Cuba, 2004.
10. **University College London (UCL). Functional Imaging Laboratory** (Host: Dr. Karl Friston). London, UK, 2004.
11. **The First International Conference on Complex Medical Engineering.** *Workshop on Where and When: Combining Functional Imaging and Electrophysiology.* Organizers: Dr. Hidenao Fukuyama and Dr. Robert Turner. Takamatsu, Japan, 2005.
12. **The 5th International Forum on Language, Brain and Cognition. Natural Language in Computer and Brain Sciences: Toward a Unified View.** LBC Center, Sendai, Japan, 2005.

13. **Montreal Neurological Institute**. McConnell Brain Imaging Center (BIC tenure-track position, *place*: de Grandpre Communication Centre). Montreal, Canada, 2005.
14. **5th International Workshop on Brain Connectivity** (Organizers: Jorge Riera and Karl Friston). Sendai, Japan, 2006.
15. 第 37 回東北大学加齢医学研究所シンポジウム. **37th IDAC Symposium (International)**. 脳画像研究の最前線. Recent Advancement of Brain imaging. - 形態からダイナミクスまで - 日時 : Sendai, Japan, 2006.
16. **2nd International Congress of Bioinformatics and neuroinformatics**. "12th International Convention and Fair Informatics. Havana, Cuba, 2007.
17. 平成 19 年度・第 3 回加齢医学研究所・生化学セミナー **3rd Biochemistry Seminar**, IDAC, Sendai, Japan, 2007.
18. **The Fourth Lyon-Tohoku Engineering and Science Forum Toward the Joint Laboratory Schedule**. Sendai, Japan, 2007.
19. **ATR International, Computational Neuroscience Laboratories** (Host: Dr. Mitsuo Kawato). Kyoto, Japan, 2007.
20. **4th Cuban Congress & 1st Ibero-American Workshop on Clinical Neurophysiology**. Varadero, Cuba, 2008.
21. **The Brain Connectivity Workshop**. Sydney, Australia, 2008.
22. **The 3rd ISN Special Neurochemistry Conference**. 8th International Meeting on Brain Energy Metabolism-“Neurodegeneration and Regeneration”, Beijing China, 2008.
23. **The University of Hong Kong** (Prof Ed Wu). The department of Electrical and Electronic Engineering, Hong Kong, 2008.
24. **Yale University Medical School** (Prof Fahmeed Hyder), **Florida Atlantic University** (Prof Viktor Jirsa), **Massachusetts General Hospital** (Prof David Boas). USA Tour, 2008.
25. **16th International Conference on Biomagnetism**, BIOMAG2008, August 25<sup>th</sup>-29<sup>th</sup>, Sapporo, Japan. **Symposium: Multimodal imaging (Organizers: N. Fujimaki, Japan and M.S. Hämalainen, USA)**.
26. **INSERM U891**, Lyon, France (Prof Olivier Bertrand) and **Max-Planck**



**Institute** (Dr Kamil Uludag), Tübingen, Germany. Europe Tour, 2009.

27. **24th Annual Meeting of Japan Biomagnetism and Bioelectromagnetics Society.** Kanazawa, Ishikawa, Japan, May 28-29, 2009. Chairman: Isao Hashimoto, Kanazawa Institute of Technology.
28. **Brain Activity Modeling: from fine to coarse scale.** Organisers: T. Huppert, H. Benali, F. Lesage. FUNCTIONAL BRAIN IMAGING and MATHEMATICS thematic semester at the Centre de Recherches Mathématiques in Montréal, Canada, 17-22 August 2009.
29. **Inverse Problems and multimodal data fusion in brain imaging.** Responsible: S. Baillet, C. Grova, JM Lina, FUNCTIONAL BRAIN IMAGING and MATHEMATICS thematic semester at the Centre de Recherches Mathématiques in Montréal, Canada, 24-29 August 2009.
30. **New Horizons in Human Brain Imaging: A focus on Brain Network and Connectivity.** Hawaii, US, December 2010.
31. **INSERM U891**, Lyon, France (Prof Olivier Bertrand), **UNIC, CNRS**, Gif Sur Yvette, France (Prof Alain Destexhe), **Norwegian University of Life Sciences**, Oslo, Norway (Prof Gaute Einevoll). Europe Tour, 2011.

## CONFERENCES

- INIFUNCE. Second Scientific Meeting. *Havana, Cuba*, 1986.
- International Conference on Advanced Methods in Neurosciences. "Neurosciences 89". *Havana, Cuba*, 1989.
- International Symposium: Machinery of the Mind. *Havana, Cuba*, 1989.
- Vth International Congress of Psychophysiology. *Budapest, Hungary*, 1990.
- 1st Latinamerican Conference of Mathematics Applied to Biology. *Havana Cuba*, 1990.
- The Second International Congress on Brain Electromagnetic Topography. *Toronto, Canada*, 1991.
- Second Symposium on the Development of Mathematics. Cuban Academy of Sciences, *Havana, Cuba*, 1992.
- The International fifth Swiss EEG-EP Mapping Meeting. *Zurich, Switzerland*, 1992.
- EPIC X. Tenth International Conference on Event Related Potentials of the Brain. *Eger, Hungary*, 1992.
- III International Congress on Brain Electromagnetic Topography. *Amsterdam, Holland*, 1992.
- Fourth International Symposium of the International Society for Brain Electromagnetic Topography. *Havana, Cuba*, 1993.
- XIIIth International Congress of Electroencephalography and Clinical Neurophysiology. *Vancouver, Canada*, 1993.
- 9th International Conference on Biomagnetism. *Vienna, Austria*, 1993.
- The Round Table on the Development of Neurosciences in the Caribbean. *Havana, Cuba*, 1993.
- 5th International Congress of the International Society for Brain Electromagnetic Topography. *Munster, Germany*, 1994.
- Fourth IBRO World Congress of Neurosciences. *Kyoto, Japan*, 1995.
- 6th International Congress of the International Society for Brain Electromagnetic Topography. *Tokushima, Japan*, 1995.
- Tenth International Conference on Biomagnetism. Biomag96. *Santa Fe, USA*, 1996.
- 7th International Congress on Brain Electromagnetic Topography. *Rio de Janeiro, Brazil*, 1996.
- 8th International Congress on Brain Electromagnetic Topography. *Zurich, Switzerland*, 1997.

- 24<sup>th</sup> Conference on Stochastic Processes and Their Applications SPA24. *Villa del Mar, Chile*, 1997.
- World Congress on Medical Physics and Biomedical Engineering. *Nice, France*, 1997.
- Noninvasive Functional Source Imaging. *Graz, Austria*, 1997.
- El V Congreso Latinoamericano de Neuropsicología. *Gualdarajara, México*, 1997.
- 4<sup>th</sup> International Conference on Functional Mapping of the Human Brain, *Montreal, Canada*, 1998.
- 11th International Conference on Biomagnetism. *Sendai, Japan*, 1998
- International Symposium for Neurological Restoration. *Havana, Cuba*, 1999.
- Satellite Symposium to the 5<sup>th</sup> Conference on Functional Mapping of the Human Brain. *Dusseldorf, Germany*, 1999.
- VI Congreso Latinoamericano de Neuropsicología. *Varadero, Cuba*, 1999.
- Basic and Clinical Neurosciences: "A dialogue with Latin America" (US-CUBA Neuromeeting). *Havana, Cuba*, 1999.
- Mathematical Methods in Biology and Medicine. Theme Year 2000-2001. Workshop on Mathematical Methods in Brain Mapping. Centre De Recherches Mathematiques (Org. Keith Worsley, McGill University). *Montreal, Canada*, 2000.
- 12<sup>th</sup> International Conference on Biomagnetism, *Helsinki, Finland*, 2000
- IV International Workshop on Wavelets, Quantization and Partial Differential Equations. *Havana, Cuba*, 2001.
- 7<sup>th</sup> Annual Meeting of the Organization of Human Brain Mapping. *Brighton, UK*, 2001.
- 8<sup>th</sup> Annual Meeting of the Organization of Human Brain Mapping. *Sendai, Japan*, 2002
- 視覚的注意の効率的配分に関する脳領域. 第2回感性福祉学会. *仙台, Japan*, 2002.
- 9<sup>th</sup> Annual Meeting of the Organization of Human Brain Mapping. *NY, USA*, 2003.
- 世紀の診断工学とその周辺. Diagnosis Engineering in 21st Century and Some other Fields. The Institute of Statistical Mathematics (ISM), *Tokyo, Japan*, 2002.
- 10<sup>th</sup> Annual Meeting of the Organization of Human Brain Mapping. *Budapest, Hungary*, 2004.
- 受動文の理解における脳内での処理の負荷. 言語処理学会

第 10 回年次大会. 東京, **Japan**, 2004.

- ボトムアップアプローチに基づく動的モデル. 第 27 回日本神経科学大会. 大阪, **Japan**, 2004.

- 第 27 回日本神経科学大会. 大阪, **Japan**, 2004.

- 平成 16 年度生理研研究会「神経科学の道具としての機能的 MRI 研究会」. 機能的磁気共鳴画像法 (機能的 MRI) の技術的ならびに生理学的な諸課題について議論・情報交換をおこなう。開催日平成 16 年 11 月 25 日 (木) ~ 26 日 (金) . SEIRIKEN KENKYUKAI, *Okazaki, Japan*, 2004.

- CREST-RIKEN Workshop. Real Time Computing and Neural Dynamics in the Brain. *Wako-shi, Japan*, 2005.

- 11<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping. *Toronto, Canada*, 2005.

- Second International Workshop on Evolutionary Cognitive Sciences. *Komaba, Tokyo*, 2005.

- The 5th International Symposium on Future Medical Engineering based on Bio-nanotechnology 21<sup>st</sup> Century Center of Excellence (COE) Program, *Sendai, Japan*, 2005.

- 平成 17 年度生理研研究会「神経科学の道具としての機能的 MRI 研究会」. *Okazaki, Japan*, 2005.

- 12<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping. *Florence, Italy*, 2006.

- The 23rd International Symposium on Cerebral Blood Flow, Metabolism & Function and the 8th International Conference on Quantification of Brain Function with PET, *Osaka, Japan*, 2007.

- The 30th Annual Meeting of the Japan Neuroscience Society (JNS). The 50th Annual Meeting of the Japanese Society for Neurochemistry (JSN), The 17th Annual Meeting of the Japanese Neural Network Society (JNNS). *Yokohama-shi, Japan*, 2007.

- The 3<sup>rd</sup> ISN Special Neurochemistry Conference. 8<sup>th</sup> International Meeting on Brain Energy Metabolism-“Neurodegeneration and Regeneration”, *Beijing, China*, 2008.

- The 31st Annual Meeting of the Japan Neuroscience Society. *Tokyo, Japan*, 2008.

- 16th International Conference on Biomagnetism. Symposium: Multimodal imaging (Organizers: N. Fujimaki, *Japan* and M.S. Hamalainen, *USA*), *Sapporo, Japan*, 2008.

- Gordon Research Conference. Brain Energy Metabolism and Blood Flow. Proctor Academy, *Andover, USA*, 2008, (*Chairman*).

- FUNCTIONAL BRAIN IMAGING and MATHEMATICS thematic semester at the Centre de Recherches Mathématiques in Montréal,

**Montréal, Canada.**

- Brain Activity Modeling: from fine to coarse scale. Organizers: T. Huppert, H. Benali, F. Lesage. 17-22 August 2009.
- Inverse Problems and multimodal data fusion in brain imaging. Responsible: S. Baillet, C. Grova, JM Lina, 24-29 August 2009.
- 24th Annual Meeting of Japan Biomagnetism and Bioelectromagnetics Society, Kanazawa, *Ishikawa*, **Japan**, May 28-29, 2009.
- Mini-workshop: Neuroimaging, Modeling and Databasing. *Sendai*, **Japan**, 2009.
- Brain Connectivity Workshop, *Maastricht*, **The Netherlands**, 2009
- Brain Connectivity Workshop, *Berlin*, **Germany**, 2010.
- Annual Meeting ISMRM-ESMRMB 2010, Stockholm, **Sweden**, May 2010.
- The 29th Naito Conference, Glia world -Dynamic function of glial cells in the brain-, Hayama, Japan, Oct 2010.
- The 33rd Annual Meeting of the Japan Neuroscience Society. *Kobe*, **Japan**, 2010.
- Annual meeting of the Asia-Pacific Signal and Information Processing Association (APSIPA) ASC, **Singapore**, December 2010. Note: Finalist for the Best Paper Awards (*Symposium*).
- New Horizons in Human Brain Imaging: A focus on Brain Network and Connectivity. Hawaii, **US**, December 2010.