

Marcello Massimini MD, PhD

Born April 5th 1970 in Milan (Italy)

Married to Valentina Conserva, 2 children (Giacomo and Alessandro)

Current Address

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Current Position

Full Professor of Physiology, Department of Clinical Science, University of Milan, Italy.

Overview

Marcello Massimini, was trained as a Medical Doctor, received a PhD in Neurophysiology and is currently Associate Professor of Neurophysiology at the University of Milan. He worked at Laval University in the lab of Mircea Steriade and at the University of Wisconsin (USA) with Giulio Tononi. Spanning from in vivo intracellular recordings to neuroimaging in humans, his whole research activity has been devoted to understanding what changes in thalamocortical circuits when consciousness fades and recovers. Specifically, his work focuses on developing theory driven measures of consciousness and on identifying the basic neurophysiological mechanisms that determine the loss and recovery of consciousness within thalamocortical networks in different conditions such as wakefulness, sleep, dreaming, anesthesia, epilepsy and brain injury. He has been involved as a PI in several European projects (FP6, FP7, H2020, SNF Sinergia) and is a recipient of the James S McDonnell Scholar Award 2013.

Education/Training

1996: Degree in Medicine, University of Milan (Italy)

2001: PhD in Neurophysiology, University of Milan (Italy)

Positions and employments

2016-today: Senior Fellow, Azrieli Program in Brain, Mind & Consciousness (CIFAR), Canada

2015-today: Guest Professor, ZEN Center for Experimental Neurology, Bern, Switzerland

2009-2012: Visiting Professor, ComaScience Group, University of Liege, Belgium

2002-2006: Research Associate, Department of Psychiatry, University of Wisconsin, USA

1999-2000: Assistant Scientist, Department of Physiology, Laval University, Quebec, Canada

Honors and awards

2002: Pickwick Post-Doctoral Fellowship, National Sleep Foundation, USA

2006: Sanofi-Aventis Research Award, European Sleep Research Society

2011: Young Investigator Award, World Sleep Foundation

2011: "Premio SIPP", Italian Psychophysiological Society

2017: Gold Medal "Faustino Savoldi", Lombardy Institute for Sciences and Letters

Research Support

2005 – FP6 EU grant, STREP, LSHM-CT-2005-518189, "Enough sleep"

2006 – PRIN 2006 "Sonno e Plasticità Corticale"

2007 - FP7 EU grant -PEOPLE-2007-4-3-IRG "Spindlesinschizo"

2008 – FP7 EU grant, STREP, FP7-ICT-2007-2. "PredictAD"

2010 - PRIN 2010 "Connage"

2013 – FP7 EU grant, ICT – 2011-9, 600806 "Corticonics"

2013 - James S McDonnell Scholar Award 2013 "Consciousness and brain complexity"

2015 – Sinergia Grant, Swiss National Science Foundation

2015 – EU grant, H2020-FETOPEN-2014-2015-RIA "Luminous"

2015 – EU grant, H2020 - Human Brain project open call "WaveScales"

2015 – EU grant, H2020 - Human Brain project open call "ConsciousBrain"

Publications

Total: **66**; Total Citations: **4797** (ISI WoS); h-Index: **34** (ISI WoS);

Casarotto S, Comanducci A, Rosanova M, Sarasso S, Fecchio M, Napolitani M, Pigorini A, Casali AG, Trimarchi PD, Boly M, Gosseries O, Bodart O, Curto F, Mariotti M, Devalle G, Laureys S, Tononi G, Massimini M. Stratification of unresponsive patients by an independently validated index of brain perturbational complexity. **Ann Neurol**. 2016 Nov;80(5):718-729.

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Ly JQ, Gaggioni G, Chellappa SL, Papachilleos S, Brzozowski A, Borsu C, Rosanova M, Sarasso S, Middleton B, Luxen A, Archer SN, Phillips C, Dijk DJ, Maquet P, Massimini M, Vandewalle G. Circadian regulation of human cortical excitability.

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Tononi G, Boly M, Massimini M, Koch C. Integrated information theory: from consciousness to its physical substrate.

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Koch C, Massimini M, Boly M, Tononi G. The neural Correlates of Consciousness: Progress and Problems

Nature Review Neuroscience, 2016 May;17(5):307-21

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Pigorini A, Sarasso S, Proserpio P, Szymanski C, Arnulfo G, Casarotto S, Fecchio M, Rosanova M, Mariotti M, Lo Russo G, Palva JM, Nobili L, Massimini M. Bistability breaks-off deterministic responses to intracortical stimulation during non-REM sleep.

Neuroimage 2015 May 15;112:105-13.

Gosseries O, Sarasso S, Casarotto S, Boly M, Schnakers C, Napolitani M, Bruno MA, Ledoux D, Tshibanda JF, Massimini M, Laureys S, Rosanova M. On the cerebral origin of EEG responses to TMS: insights from severe cortical lesions.

Brain Stimulation 2015 Jan-Feb;8(1):142-9. doi: 10.1016/j.brs.2014.10.008. Epub 2014 Oct 18.

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J Affect Disord. 2015 Sep 15;184:111-5. doi: 10.1016/j.jad.2015.05.043. Epub 2015 Jun 3.
- Karabanov A, Ziemann U, Hamada M, George MS, Quartarone A, Classen J, Massimini M, Rothwell J, Siebner HR. Consensus Paper: Probing Homeostatic Plasticity of Human Cortex With Non-invasive Transcranial Brain Stimulation.
Brain Stimulation 2015 May-Jun;8(3):442-54. doi: 10.1016/j.brs.2015.01.404.
- Boly M, Sasai S, Gosseries O, Oizumi M, Casali A, Massimini M, Tononi G. Stimulus set meaningfulness and neurophysiological differentiation: a functional magnetic resonance imaging study.
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- Sarasso S, Rosanova M, Casali AG, Casarotto S, Fecchio M, Boly M, Gosseries O, Tononi G, Laureys S, Massimini M. Quantifying cortical EEG responses to TMS in (un)consciousness.
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Assessing consciousness in coma and related states using transcranial magnetic stimulation combined with electroencephalography.
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- George MS, Massimini M.
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- Sarasso S, Proserpio P, Pigorini A, Moroni F, Ferrara M, De Gennaro L, De Carli F, Lo Russo G, Massimini M, Nobili L. Hippocampal sleep spindles preceding neocortical sleep onset in humans.
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- Casali Adenauer, Gosseries Olivia, Rosanova Mario, Boly Melanie, Sarasso Simone, Casali Karina, Casarotto Silvia, Bruno Marie-Aurelie, Laureys Steven, Tononi Giulio, Massimini Marcello.
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Science Translational Medicine 2013 Aug 14;5(198):198ra105. doi: 10.1126
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Brain Topography,1-12,2013
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Cerebral Cortex,23,2,1-7,2013
- Massimini, Marcello; Ferrarelli, Fabio; Sarasso, Simone; Tononi, Giulio;
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Archives italiennes de biologie,150,2/3,44-55,2012,

Ferrarelli, Fabio; Sarasso, Simone; Guller, Yelena; Riedner, Brady A; Peterson, Michael J; Bellesi, Michele; Massimini, Marcello; Postle, Bradley R; Tononi, Giulio;

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Archives of General Psychiatry 2012.147 v1,2012

Rosanova, Mario; Gosseries, Olivia; Casarotto, Silvia; Boly, Mélanie; Casali, Adenauer G; Bruno, Marie-Aurélié; Mariotti, Maurizio; Boveroux, Pierre; Tononi, Giulio; Laureys, Steven;

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Brain,135,4,1308-1320,2012

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Time–frequency spectral analysis of TMS-evoked EEG oscillations by means of Hilbert–Huang transform

Journal of Neuroscience Methods,198,2,236-245,2011

Boly, Melanie; Garrido, Marta Isabel; Gosseries, Olivia; Bruno, Marie-Aurélié; Boveroux, Pierre; Schnakers, Caroline; Massimini, Marcello; Litvak, Vladimir; Laureys, Steven; Friston, Karl;

Preserved feedforward but impaired top-down processes in the vegetative state.

Science, 332,6031,858-862,2011

Murphy, Michael; Bruno, Marie-Aurelie; Riedner, Brady A; Boveroux, Pierre; Noirhomme, Quentin; Landsness, Eric C; Brichant, Jean-Francois; Phillips, Christophe; Massimini, Marcello; Laureys, Steven;
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Sleep, 34,3,283,2011

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EEG responses to TMS are sensitive to changes in the perturbation parameters and repeatable over time.
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Ferrarelli, Fabio; Massimini, Marcello; Sarasso, Simone; Casali, Adenauer; Riedner, Brady A; Angelini, Giuditta; Tononi, Giulio; Pearce, Robert A;
Breakdown in cortical effective connectivity during midazolam-induced loss of consciousness.
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Prog Brain Res,177,,383-398,2009,

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Tononi, Giulio; Massimini, Marcello;

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Ferri, Raffaele; Huber, Reto; Aricò, Debora; Drago, Valeria; Rundo, Francesco; Ghilardi, M Felice; Massimini, Marcello; Tononi, Giulio;
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Ferrarelli, Fabio; Huber, Reto; Peterson, Michael; Massimini, Marcello; Murphy, Michael; Riedner, Brady; Watson, Adam; Bria, Pietro; Tononi, Giulio;

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American Journal of Psychiatry, 164,3,483-492,2007

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Milan, Sept 2nd , 2016

A handwritten signature in black ink, appearing to read 'Marcello Massimini', with a long horizontal flourish extending to the right.