

# CURRICULUM VITAE

**SELMA SUPEK Ph.D,**  
***retired since October 1, 2020***

*Assistant Professor*  
*Senior Scientific Associate*  
*Head of the Neurodynamic imaging group*  
*Division for Experimental Physics*  
*Department of Physics*  
*Faculty of Science*  
*University of Zagreb*

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**Rubetićeva 10**  
**10000 Zagreb**  
**CROATIA**

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**Web:**

**<http://www.pmf.unizg.hr/phy/en/selma.supek>**  
**[www.brain.com.hr](http://www.brain.com.hr)**  
**<https://www.biomagcentral.org/>**



## **ACADEMIC EDUCATION**

-B.Sc., Physics at the University of Zagreb, Croatia 1981;

-M.Sc., Physics at the University of Zagreb, Croatia 1987;

-Ph.D., Physics at University of Zagreb, Zagreb 1993.

Thesis: “*Multi-source Modeling in Magnetoencefalography: Simulation and Empirical Studies*”

Mentors: Cheryl J. Aine , Ph.D. and Leon Heller, Ph.D; thesis conducted at the Biophysics Group, Los Alamos National Laboratory (LANL), Los Alamos, NM, USA; **LA-UR – 93-195**

## **Foreign languages**

English - C2

Italian - B2

French - B1

German - B1

## **ACADEMIC AND RESEARCH EXPERIENCE:**

- Assistant Professor, Dept. of Physics, Faculty of Science, University of Zagreb, **1998 - Sept 30, 2020**; Associate Research Professor - **May 17, 2013- Sept 30, 2020**
- Higher Scientific Assistant, Dept. of Physics, Faculty of Science, Univ. of Zagreb, 1995-1998.
- Graduate Research Assistant, Physics Division, Biophysics Group, Los Alamos National Laboratory, Los Alamos, New Mexico, USA, 1988. - 1993
- Scientific Assistant, Dept. of Physics, Faculty of Science, 1985-1995
- Teaching Assistant, Faculty of Printing Engineering, University of Zagreb, 1983-1985

## **FUNCTIONS AND MEMBERSHIP IN PROGRAMS, INSTITUTIONS AND BOARDS**

- **Editorial Board Member of the BiomagCentral** (sections: IAB and Biomag Conferences) – **2017- now**
- **IAB Coordinator for the BiomagCentral portal** – 10/2016-04/2019
- **Member of the Board for Neuroscience and Diseases of the Brain, Division of Medical Sciences**, Croatian Academy of Arts and Science - **25.3.2015 – now**
- **Member of the Working group for the Northern Campus of the University of Zagreb** – 15.12.2014 – 2015
- **Member of the Croatian Council for Brain** – **12. 6. 2012. - now**
- **Member of the Coordination for Biomedical Engineering of the University of Zagreb**, **02/2012 – now**
- **Secretary General of the IAB** of the BIOMAG conferences - 2012-2014
- **Chair of the International Advisory Board (IAB)** of the BIOMAG conferences - 2010-2012
- **Member of the National MEG Initiative Board (CroMEGin)** - 2009 – 2010
- **Permanent Member of the International Advisory Board** for the series of International Conferences on Biomagnetism – ***IAB of the BIOMAG*** conferences - **2008 – now**
- **Member of the Operational board for the Nikola Tesla Year** in the Republic of Croatia – 2006
- **Member of the Managing Board of the Mediterranean Institute for Life Sciences (MedILS)** – 2005- 2006
- **Member of the Working group of the Croatian Physical Society for the World Year of Physics**, 2005
- **Member of the Coordination committee of the University of Zagreb** for the **Interdisciplinary graduate study "Language Communication and Cognitive Neuroscience"**, University of Zagreb, 2003 – 2004
- **Co-director of the Interdisciplinary graduate study "Language Communication and Cognitive Neuroscience - JEKON"**, University of Zagreb, 03/2003 – 11/2004
- **Mentor leader for students of the I and II year** for study programs of *Educational physics* and *Educational physics and mathematics* – 25.5.1995 – 1.10.2005

## **VISITING SCIENTIST**

- Visiting Scientist – ***Dept. of Biomedical Engineering and Computational Science (BECS), Aalto University***, 02/2014
- Visiting Scientist – ***Multi-Modal Imaging Laboratory, Department of Radiology, University of California San Diego - UCSD***, 04/2011
- Visiting Scientist, ***MIND Research Network, University of New Mexico***, 09/2007; 05/2011.
- Visiting Scientist, ***Fridrich Schiller University, Jena***, 10/2008.
- Visiting Scientist, ***Technical University Ilmenau***, 07/2007.
- Visiting Scientist, ***Biomagnetism Section, Department of Neurology, University of Heidelberg***, Heidelberg, Germany, 05/2000, 03/2002 and 08/2002, 10/2005, 10/2006, 11/2007, 11/2008, 10/2009; 11/2011; 03/2012.
- Visiting Scientist, ***BioMag Laboratory, Helsinki University Central Hospital***, Helsinki, Finland, 04/2002
- Visiting Scientist, ***Institute of Advanced Biomedical Technologies (ITAB), University "G. D'Annunzio"***, Chieti, Italy, 05/2000.
- Visiting Faculty, ***Physics Division, Biophysics Group, Los Alamos National Laboratory***, Los Alamos, New Mexico, USA, 08/95 - 02/96.

- Consultant, *Physics Division, Biophysics Group, Los Alamos National Laboratory*, Los Alamos, New Mexico, USA, 06/93 -08/93
- Graduate Research Assistant – *Physics Division, Biophysics Group – P-6, Los Alamos National Laboratory*, **05/1988 – 01/1993**
- Guest Scientist, *Life Sciences Division, Los Alamos National Laboratory*, Los Alamos, New Mexico, USA, 07/87 - 02/88.

## FUNDED RESEARCH PROJECTS

- 2018 -2022 H2020 MSCA-ITN-2018-ETN**  
**"INtegrating Functional Assessment measures for Neonatal Safeguard – INFANS "**  
 Project duration: **48 months**  
 January 1, 2019 – December 31, 2022  
**Selma Supek – member of the External Advisory Bord**
- 2020 Support RESEARCH, University of Zagreb  
*Collaborator on the project "Magnetska i električna svojstva novih i izabranih materijala", P.I.: Kreso Zadro*
- 2019 Support RESEARCH, University of Zagreb  
*Collaborator on the project "Magnetska i električna svojstva novih i izabranih materijala", P.I.: Kreso Zadro*
- 2018 Support RESEARCH, University of Zagreb  
*Collaborator on the project "Magnetska i električna svojstva novih i izabranih materijala", P.I.: Kreso Zadro*
- 2017 Support RESEARCH, University of Zagreb  
*Collaborator on the project "Magnetska i električna svojstva novih i izabranih materijala", P.I.: Damir Pajić*
- 2014 Support COLLABORATION, University of Zagreb for research mobility  
**individual mobility support for Selma Supek**
- 2011 – 2015 **MC i WG-5 Member** *COST TD1007 Action – Bimodal PET-MRI molecular imaging technologies and applications for in vivo monitoring of disease and biological processes*
- 2011 – 2014 **MC i WG-2 Member** *COST TD0904 Action – Time in Mental activity: theoretical, behavioral, bioimaging and clinical perspectives (TIMELY)*
- 2007-2014 **Principal Investigator of the project** *Cognitive Neurodynamics* (119-1081870-1252, Croatian Ministry of Science, Education and Sport – MZOS)
- 2012 *Collaborator on the project: Networking in Neuroscience* (Fund for the Development, University of Zagreb, Program Excellence, P.I.: Ivica Kostovic)
- 2012 *Collaborator on the project: Exploration of students' strategies in solving simple algebraic equations* *Istraživanje učeničkih strategija u rješavanju jednostavnih algebarskih jednadžbi* (Fund for the Development, University of Zagreb, Program Docent, P.I.: Ana Sušac)
- 2008 – 2011 **MC i WG-2 Member** *COST BM0601 Action – Advanced methods for the estimation of human brain activity and connectivity (NEUROMATH)*
- 2008 – 2011 **MC i WG-2 Member** *COST BM0605 Action – Consciousness: A Transdisciplinary, Integrated Approach*
- 2006 – 2009 **WG-3 Member** *COST B27 Action – Electrical neuronal oscillations and cognition (ENOC)*

- 2005-2009 **Coordinator of the project:** *Detection of small metal objects by multi-compartment magnetic measurements* (NATO PDD(CP) – PST.EAP.CLG981130)
- 2002-2006 **Principal Investigator of the project** *Functional imaging of the brain using neurodynamic methods* (Croatian Ministry of Science and Technology - MZT, #0119265)
- 1994-2002 *Collaborator on the project: Nuclear structure, chaos, and computational physics* (Croatian Ministry of Science and Technology, #1192111, P.I.: Vladimir Paar)
- 1990 – 1996 *Collaborator on the project: Neuromagnetic mapping of multiple visual areas in humans* (NIH/NEI EY08610, P.I. Cheryl J. Aine)

## **SUPERVISED DOCTORAL DISSERTATIONS AND OTHER ACADEMIC THESES**

### **Mentor of 27 diploma/master theses in physics**

(not listed, available on <https://bib.irb.hr/lista-radova?autor=156604>)

**Mentor of 2 doctoral students**, Department of Physics, Doctoral program of physics, branch biophysic

- Ana Susac , *Neurodynamics of face processing*,  
Thesis defence, September 4, 2008.
- Sanja Josef-Golubic, *Neurodynamics of normal and pathology-changed sensory processing*  
Thesis defence, January 23, 2014.

**Member of the committees for doctoral thesis approval, evaluation and defence for 6 students:**

- Sanja Josef Golubic – Department of Physics, Faculty of Science, University of Zagreb
- Anonymous candidate – Medical faculty, University of Split
- Ivan Cimo – Department of biology, Faculty of science, University of Zagreb
- Ana Jeroncic – Department of biology, Faculty of science, University of Zagreb
- Sonja Tomaskovic - **University of Groningen RuG School of Behavioral and Cognitive Neuroscience BCN and Faculty of Science**

## **ORGANIZATION OF INTERNATIONAL COURSES AND STUDY PROGRAMS**

### **FOUNDATION AND DIRECTORSHIP OF NEW STUDY PROGRAMS**

**Co-founder and Co-director of the Interdisciplinary graduate study "LANGUAGE COMMUNICATION AND COGNITIVE NEUROSCIENCE", University of Zagreb, 2003-2004.**

## FOUNDER AND DIRECTOR OF THE SERIES OF INTERNATIONAL GRADUATE COURSES:

[www.brain.com.hr](http://www.brain.com.hr)

- *Joint COST B27/SAN Training School: Neurofeedback and ADHD and Mind and Brain VI: Neuroplasticity of Brain and Behavior*, April 16-21, 2009, IUC-Dubrovnik, Croatia
- *Mind and Brain V: Physics and the Brain*, September 17-23, 2006, IUC-Dubrovnik, Croatia
- *Mind and Brain IV: Images of the working brain*, September 20-26, 2004, IUC-Dubrovnik, Croatia
- *Mind and Brain III: Audition, Language, Communication*, April 26- May 4, 2003, IUC-Dubrovnik, Croatia
- *Mind and Brain II: An Interdisciplinary Approach*, October 15-18, 2001, IUC-Dubrovnik, Croatia.

## DUTIES AS SCIENTIFIC EXPERT

### Editor-in-Chief

Selma Supek, *Corresponding Editor-in-Chief* (2017 – now)

<https://meteor.springer.com/project/dashboard.jsf?id=603&tab=About&mode=ReadPage&entity=4219>

Supek, S. and Aine, C.J. (Eds.)

*Magnetoencephalography – From Signals to Dynamic Cortical Networks*,  
2<sup>nd</sup> Edition / *Springer Major Reference Work*

**Living Magnetoencephalography Reference**

<https://link.springer.com/referencework/10.1007%2F978-3-319-62657-4#toc>

**On-line publication: March 2019**

**DOI <https://doi.org/10.1007/978-3-319-62657-4>**

**Springer, Cham**

E-reference work: ISBN 978-3-030-00087-5

Book with Online Access (e-book): ISBN 978-3-030-00088-2

Hardcover: ISBN 978-3-030-00086-8

**E-book/Print publication October 2019**

### Guest Editor

Medical & Biological Engineering & Computing – **MBEC Special Issue** on *Neurodynamic Insight into Functional Connectivity and Cognition*, Med. Biol. Eng. Comput. **49(5)**, 2011

Editors, Special Issue: Selma Supek and Ratko Magjarevic

### Member of the Editorial Board

- Brain Imaging Methods for Frontiers in Neuroscience and Frontiers in Neurology (2020 – now)
- SN Applied Sciences (2019 – now)
- International Journal of Physical Sciences (2006 – 2017)

### Member of the Reviewer Board

- MDPI Brain Sciences (2019 – now)  
<https://www.mdpi.com/journal/brainsci>

### **Reviewer for projects/infrastructures:**

- **2020 – now Human Bran Project** - Calls for Expression of Interest (CEoIs) – *Independent Evaluator*
- **2018-now –ResInfra@DR** Registry of Research Infrastructure Reviewers in the Danube region
- **2018 Slovenian Ministry for Science, Education and Sport**– *Expert in the Evaluation Panel*
- **2014 – 2016 FP7 FET**– *European Commission Expert Project Monitor*
- **2015- now COST Association**– *External Academic Expert*
- **2013-2014 Croatian Science Foundation** – *Member of the Evaluation Panel*
- **2006 Ministry of Science, Education and Sport national projects**– *Expert Reviewer*
- **2002-2006 TEMPUS III Joint European Projects**– *European Commission Academic Expert*

### **Reviewer for journals:**

IEEE Transactions on Biomedical Engineering  
Human Brain Mapping  
IOP Physics in Medicine and Biology  
IOP Physiological Measurements  
Audiology and Neuro-Otology  
Medical and Biological Engineering and Computing  
Brain Topography  
Neurology and Clinical Neurophysiology  
International Journal of Physical Sciences  
Computational Intelligence and Neuroscience  
Croatian Medical Journal  
European Journal of Neuroscience  
NeuroImage Clinical  
Neuroscience Letters  
Computational and Mathematical Methods in Medicine  
Sensors and Actuators A. Physical  
SpringerPlus  
Frontiers in Human Neuroscience  
Biomedical Engineering  
Entropy  
Brain Sciences

### **Reviewer for books**

2002 IMIA Yearbook of Medical Informatics  
2003 IMIA Yearbook of Medical Informatics  
2004 IMIA Yearbook of Medical Informatics  
2005 IMIA Yearbook of Medical Informatics  
2006 IMIA Yearbook of Medical Informatics  
2007 IMIA Yearbook of Medical Informatics  
2011 IMIA Yearbook of Medical Informatics  
2012 IMIA Yearbook of Medical Informatics

### **Reviewer – for conferences:**

Biomag2004, Biomag2010, 2012, Biomag2016, Biomag2018  
MIE 2006, 2008, 2009, 2012, 2013, 2014, 2015, 2017, 2018  
HEC 2016  
EFMI STC 2016  
MBEC2014  
OHBM 2006, 2007, 2011, 2012  
NFSI 1999, 2001, 2003  
AtoS 2005  
MEDINFO 2004, 2007  
COST B27 Dubrovnik 2009

MEDICON 2010, 2016  
COST BM0601 Dubrovnik 2010  
IMEKO 1998

### **Reviewer – other**

- Member of the Biomag2012 Award Committee for *James Zimmerman Prize* 18<sup>th</sup> International International Conference on Biomagnetism, Biomag2012, August 26-31, 2012, Paris, France
- Reviewer for the *Croatian national award for science* for young investigators, 2007.
- Reviewer/judge in the *Young Investigator Award* competition, 14<sup>th</sup> International International Conference on Biomagnetism, Biomag2004, August 7-12, 2004, Boston, MA

## **ORGANIZATION OF INTERNATIONAL MEETINGS**

### **Conference Chair**

*17<sup>th</sup> International Conference on Biomagnetism BIOMAG2010*, March 27 – April 1, 2010, Dubrovnik, Croatia [www.biomag2010.brain.com.hr](http://www.biomag2010.brain.com.hr)

### **Symposium Organizer and Chair**

- *First Symposium Toward translational research in brain and heart studies: Achievements and challenges in knowledge and technology transfer*, February 18, 2008; Zagreb, Croatia
- *NIKOLA TESLA Symposium: Electromagnetism and the Brain*, September 18, 2008, International course and conference MIND AND BRAIN V: Physics and the Brain, September 17-23, 2006, Dubrovnik, Croatia [www.brain.com.hr](http://www.brain.com.hr)
- Symposium 1: *Modelling and inverse problem*, August 13, 2000; 12<sup>th</sup> International Conference on Biomagnetism, August 13-17, 2000, Espoo, Finland
- *2<sup>nd</sup> International Symposium on Noninvasive Functional Source Imaging - NFSI-99*, September 3-7, 1999, Zagreb, Croatia [www.brain.com.hr](http://www.brain.com.hr)

### **Workshop organizer**

- *Special topics workshop: Biomagnetism*, May 28, 2012  
2012 World Congress on Medical Physics and Biomedical Engineering – WC2012, May 26 – 31, 2012, Beijing, China
- *WGs and MC Meeting and Workshop of the NeuroMath COST Action BM0601 ‘Neurodynamic insight into functional connectivity, cognition and consciousness’*  
March 27-28, 2010, Dubrovnik, Croatia

### **Conference symposium organizer and chair:**

- **Special Session SS11: Real-time neuroimaging of the human brain: Methods and applications**, September 8, 2014  
6<sup>th</sup> European Conference of the International Federation of Medical and Biological Engineering MBEC2014, September 7-11, 2014, Dubrovnik, Croatia
- **Mini-symposium: Magnetoencephalography**, May 31, 2012  
2012 World Congress on Medical Physics and Biomedical Engineering – WC2012, May 26 – 31, 2012, Beijing, China
- **Presidential Plenary symposium S-6: Four decades of SQUIDs in Brain and Heart Research**, March 30, 2010, 17<sup>th</sup> International Conference on Biomagnetism, March 28-April 1, 2010, Dubrovnik, Croatia
- Symposium 1: **Modelling and inverse problem**, August 13, 2000; 12<sup>th</sup> International Conference on Biomagnetism, August 13-17, 2000, Espoo, Finland

### **Course and Conference Organizing Director:**

International course and conference: **Mind and Brain V: Physics and the Brain**, September 17-23, 2006, IUC-Dubrovnik, Croatia

### **Member of the Scientific Program Committee of international scientific meetings**

14. 21<sup>th</sup> International Conference on Biomagnetism – Biomag2018, August 26-30, 2018, Philadelphia, Pennsylvania, USA
13. 5<sup>th</sup> Croatian Neuroscience Congress, September 17-19, 2015, Split, Croatia
12. 6<sup>th</sup> European Conference of the International Federation for Medical and Biological Engineering MBEC2014, September 7-11, 2014, Dubrovnik, Croatia
11. 18<sup>th</sup> International Conference on Biomagnetism – Biomag2012, August 26 – 30, 2012, Paris, France
10. 5<sup>th</sup> European Conference of the International Federation for Medical and Biological Engineering European IFMBE MBEC 2011, September 14-18, 2011, Budapest, Hungary
9. WGs and MC Meeting and Workshop of the NeuroMath COST Action BM0601 “Neurodynamic insight into functional connectivity, cognition and consciousness”  
March 27-28, 2010, Dubrovnik, Croatia
8. 17<sup>th</sup> International Conference on Biomagnetism – Biomag2010, March 28-April 1, 2010, Dubrovnik, Croatia,  
**Scientific Program Committee Chair**
7. 13<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping, OHBM-2007,  
June 10-14, 2007, Chicago, IL, USA
6. 12<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping, OHBM-2006,  
June 11-15, 2006, Florence, Italy
5. 11<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping, OHBM-2005,  
June 12-16, 2005, Toronto, Canada
4. 4<sup>th</sup> International Symposium on Noninvasive Functional Source Imaging - NFSI-2003, September 20-24, 2003, Chieti, Italy
3. 3<sup>rd</sup> International Symposium on Noninvasive Functional Source Imaging - NFSI-2001, September 6-9, 2001, Innsbruck, Austria
2. 3<sup>rd</sup> International Conference on Bioelectromagnetism, October 8-12, 2000, Bled, Slovenia
1. 2<sup>nd</sup> International Symposium on Noninvasive Functional Source Imaging - NFSI-99, September 3-7, 1999, Zagreb, Croatia



## **Session Chair at international scientific meetings**

13. *Special Session SS11: Real-time neuroimaging of the human brain: Methods and applications*, September 8, 2014  
6<sup>th</sup> European Conference of the International Federation of Medical and Biological Engineering MBEC2014, September 7-11, 2014, Dubrovnik, Croatia
12. *Mini-symposium: Magnetoencephalography*, May 31, 2012  
2012 World Congress on Medical Physics and Biomedical Engineering – WC2012, May 26 – 31, 2012, Beijing, China
11. *Special topics workshop: Biomagnetism*, May 28, 2012  
2012 World Congress on Medical Physics and Biomedical Engineering – WC2012, May 26 – 31, 2012, Beijing, China
10. Morning Session, Thursday, September 30, 2010, 09:00 – 14:00  
International Summer School on Emerging Technologies in Biomedicine “High Throughput Communication between Brain and Machines”, European COST Action NeuroMath (BM0601) September 26-October 1, 2010, Patras, Greece
9. *Morning session: March 26, 2010*  
WGs and MC Meeting and Workshop of the NeuroMath COST Action BM0601  
“Neurodynamic insight into functional connectivity, cognition and consciousness”  
March 27-28, 2010, Dubrovnik, Croatia
8. Morning Session B: Neuronal Biophysics, February 13,  
Regional Biophysics Conference 2009, February 10-14, 2009, Linz, Austria
7. *Session 1: Method 1: Commercial EEG/MEG software presentations: Overview, unique aspects and their applications*, November, 19, 2003  
14<sup>th</sup> Conference of the International Society for Brain Electromagnetic Topography, November 19-23, 2003, Santa Fe, NM
6. *Special Topics - oral presentations, September 6, 2001*  
*fMRI - Brain Mapping, September 7, 2001*  
3<sup>rd</sup> International Symposium on Noninvasive Functional Source Imaging, NFSI-2001, September 6-9, 2001, Innsbruck, Austria
5. *Medical Imaging, June 15, 2001*  
MEDICON 2001, June 12-15, 2001, Pula, Croatia
4. *TM: Theory and Models (platform presentations), October 9, 2000*  
3<sup>rd</sup> International Conference on Bioelectromagnetism, October 8-12, 2000, Bled, Slovenia
3. *Tutorial on source modeling, September 14, 2000*  
12<sup>th</sup> International Conference on Biomagnetism, August 13-17, 2000, Espoo, Finland
2. *Invited tutorial: MEG, September 3, 1999*  
2<sup>nd</sup> International Symposium on Noninvasive Functional Source Imaging - NFSI-99, September 3-7, 1999, Zagreb, Croatia, September 3, 1999.
1. *Medical imaging, September 19, 1998*  
8<sup>th</sup> International IMEKO Conference on Measurement in Clinical Medicine Biomedical Measurement and Instrumentation and 12<sup>th</sup> International Symposium on Biomedical Engineering, Dubrovnik, Croatia, September 16-19, 1998.

## MEMBERSHIP

1. International Brain Research Organization (**IBRO**) – 1989 - now
2. Society for Neuroscience (**SFN**) – 1989 - 2005
3. Organization for Human Brain Mapping (**OHBM**) – 1995 - 2011
4. Molecular and Cellular Cognition Society (**MCCS**)
5. Society for Applied Neuroscience (**SAN**) – 2008 - now
6. New York Academy of Sciences (**NYAS**) -1989 – 1995; 2005 – 2016
7. International Neuroethics Society (**INS**) 2005 - 2010
8. International Society for Bioelectromagnetism (**ISBEM**) – 2003 - now
9. International Society for the Advancement of Clinical MEG (**ISACM**) – 2007 - now
10. Croatian Physical Society (**CPS**) – 1994 - 2015
  - Treasurer (2006-2008);
  - Member of the Organizational and Scientific Boards (2006-2008)
  - Member of the WG *Women in Physics* (2010-2012)
11. Croatian Biophysical Society (**CBS**) – 1994 - 2019
  - Member of the Management Board (2000-2002)
  - Member of the Supervisory Board (2002-2010)
12. Croatian Society for Biomedical Engineering and Medical Physics – 1998 - now
  - Delegate at the IFMBE Assembly at WC2012 in Beijing, China)
13. Croatian Society for Neuroscience (**CSFN**) – 2000 - now
  - Member of the Scientific Board
14. Croatian Medical Physics Association (**CROMPA**) – 2019 - now

## SCIENTIFIC ACTIVITY



**EDITED BOOK:** 2 (Springer-Verlag, 2014; Springer Nature MRW- MEG2e, 2019)

**PUBLICATIONS:** total of 43: 2 book chapters, 23 journal papers, 4 review papers, 14 conference papers with international review

**EDITED PROCEEDINGS BOOKS:** 8

**EDITED JOURNALS:** 1 MBEC Special Issues

**INTERNATIONAL AND DOMESTIC CONFERENCE PRESENTATIONS:** 98

**INVATED LECTURES:** 26 (23 at international and 3 at national meetings)

**SEMINARS AT INTERNATIONAL INSTITUTIONS:** 6

**PUBLIC LECTURES and SEMINARS:** 30

**Selma Supek** obtained her diploma, M.Sc., and doctoral degrees in physics at the Department of Physics. Her thesis research on the retinotopic organization of the human visual cortex and spatio-temporal resolution of MEG was done at the Biophysics Group, *Los Alamos National Laboratory - LANL* (1988-1993, NIH/NEI EY08610, mentors Cheryl Aine and Leon Heller). After returning back to Zagreb she established collaborations with MEG laboratories at LANL; UNM (via bilateral University agreement) and the Mind Research Network; ITAB, Chieti; BioMag Laboratory, Helsinki; Department of Neurology, University of Heidelberg; TU Ilmenau (via bilateral University agreement); and University of Jena and introduced functional brain imaging methods, in particular MEG in Croatia both in research and educational programs. Without any laboratory facility, and a rather low research funding, she started research projects covering topics of sensory and cognitive neurodynamics. She mentored 27 diploma and 2 doctoral physics students. So far 6 of her physics

students obtained doctoral degrees with their thesis topics related to functional brain imaging (4 at international laboratories and 2 at the Department of Physics). Selma Supek introduced also the field of functional brain imaging to diploma and doctoral programs at the Department of Physics, Faculty of Science and the School of Medicine, both within University of Zagreb. She also founded a series of intensive graduate courses *MIND AND BRAIN* [www.brain.com.hr](http://www.brain.com.hr) within the academic program of the InterUniversity Centre Dubrovnik and co-founded the first university interdisciplinary international postgraduate program "*Language Communication and Cognitive Neuroscience*" at the University of Zagreb.

Research interests of Selma Supek include: cognitive neurodynamics, aging and neurodegeneration, educational neuroscience, neurodynamics of auditory cortex, functional and retinotopic organization of the visual cortex (doctoral and current research), spatio-temporal resolution of magnetoencephalography (doctoral and current research), and semi-empirical methods for a quantum theory of small molecules (master program research).

## LIST OF PUBLISHED SCIENTIFIC PUBLICATIONS

### **Edited Book**

1. **Supek, S.** and Aine, C.J. (Eds.)  
*Magnetoencephalography: From Signals to Dynamic Cortical Networks*  
*2<sup>nd</sup> Edition* / Springer Nature Major Reference Works  
<https://link.springer.com/referencework/10.1007%2F978-3-319-62657-4#toc>  
**On-line publication: March 2019**  
Springer, Cham  
E-reference work: ISBN 978-3-030-00087-5  
Book with Online Access (e-book): ISBN 978-3-030-00088-2  
Hardcover: ISBN 978-3-030-00086-8  
**E-book/Print publication October 2019**
2. **Supek, S.** and Aine, C.J. (Eds.) *Magnetoencephalography: From Signals to Dynamic Cortical Networks*, Springer-Verlag, Heidelberg, 2014, ISBN: 978-3-642-33044-5

### **Book chapters**

2. Aine, Cheryl J.; **Supek, Selma**; Stephen, Julia M.: *Transition from basic visual to assessment of memory functions*. In: Magnetoencephalography: From Signals to Dynamic Cortical Networks, Supek, Selma and Aine, Cheryl J. (Eds.). Heidelberg: Springer Verlag, 2014. pp. 767-800
1. Papanicolaou, A.C.; Greenblatt, R. E.; Aine, C.J.; Zouridakis, G.; Castillo, E.M.; Buchanan, D.S.; **Supek, Selma**: *The Method*, Clinical Magnetoencephalography and Magnetic Source Imaging / Papanicolaou, Andrew C., Cambridge : Cambridge University Press, 2009, pp. 3-56

## **Publications in journals**

23. Josef Golubic, Sanja; Aine, Cheryl J; Stephen, Julia M.; John C. Adair.; Janice E. Knoefel; **Supek, Selma**: ‘‘MEG biomarker of Alzheimer’s disease: Inactivation of prefrontal generator within the auditory sensory gating network’’, *Human Brain Mapping*, **38**:5180–5194, 2017
22. Alejandro Tabas, Anita Siebert, **Selma Supek**, Daniel Pressnitzer, Emili Balaguer-Ballester., Andre Rupp: "Insights on the neuromagnetic representation of temporal asymmetry in human auditory cortex", *PLoS ONE* 11(4):e0153947. doi:10.1371/journal.pone.0153947; 1-21, 2016
21. Josef Golubic, Sanja; Aine, Cheryl J; Stephe, Julia; Adair, John C; Knoefel, Janice E; **Supek, Selma**; Modulatory role of the prefrontal generator within the M50 network. *NeuroImage*, **92C**: 120-131, 2014
20. Susac, Ana; Sušac, Ana; Heslenfeld, Dirk; Huonker, Ralph; **Supek, Selma**. Magnetic source localization of early visual mismatch response. *Brain topography*, **27**: 1-4, 2013
19. Vecchiato, Giovanni; Sušac, Ana; Margeti, Stavroula; **Supek, Selma**; Planinić, Maja; Babiloni, Fabio. High-Resolution EEG Analysis of Power Spectral Density Maps and Coherence Networks in a Proportional Reasoning Task. *Brain Topography*, **26**(2), 303-14 2012
18. **Supek S**, Magjarevic R: Neurodynamic measures of functional connectivity and cognition, *Med. Bio. Eng. Comput.*, **49**(5), 507-509, 2011
17. Josef Golubic S, Susac A, Grilj V, Huonker R, Haueisen J, **Supek S**. Size matters: MEG empirical and simulation study on source localization of the earliest visual activity in the occipital cortex. *Med. Bio. Eng. Comput.*, **49**(5), 545-554 2011
16. Susac A, Ilmoniemi R, **Supek S**. Face activated neurodynamic cortical networks, *Med. Biol. Eng. Comput.* **49**(5), 531-543, 2011
15. Sušac, Ana; Ilmoniemi, Risto; Pihko, Elina; Ranken, Doug; **Supek, Selma**. Early cortical responses are sensitive to changes in face stimuli. *Brain research*, **1346**, 155-164, 2010
14. Susac, Ana; Ilmoniemi, Risto; **Supek, Selma**. Sensory-memory-based change detection in face stimuli. *Translational Neuroscience* **1**(4): 286-291, 2010, DOI: 10.2478/v10134-010-0042-7
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4. **Supek, S.**, Aine, C.J.: Simulation studies of multiple dipole neuromagnetic source localization: Model order and limits of source resolution. *IEEE Transactions on Biomedical Engineering*, **40**:529-540, 1993.
3. Maksic, Z.B., **Supek, S.**: Critical appraisal of some current semiempirical methods in calculating ESCA chemical shifts. *J. Mol. Struct.*, **198**: 427-434, 1989
2. Maksic, Z.B., Primorac, M., **Supek, S.**: Semiempirical vs. Ab Initio calculation of molecular properties. Part 3. Electric field gradients at <sup>14</sup>N Nuclei in some small and medium size molecules. *Croat. Chem. Acta*, **61**: 65-72, 1988
1. Maksic, Z.B., **Supek, S.**: Minimal requirements for approximate wavefunctions of molecules. *Theor. Chim. Acta*, **74**: 275-288, 1988

### ***Conference papers published in proceedings with international peer-review***

14. G. Gaeta, A. Susac, **S. Supek**, F. Babiloni, G. Vecchiato: Analysis of EEG variables to measure the affective dimensions of arousal and valence related to the vision of emotional pictures, *Proceedings of the 37<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society*. Volume: 2015, pp 2518-21, DOI:10.1109/EMBC.2015.7318904
13. Sušac, Ana; Ilmoniemi, Risto; Ranken, Doug; **Supek, Selma**. Neural substrate of target detection in an MEG oddball study with faces, *Biomagnetism: Transdisciplinary Research and Exploration / Kakigi, K ; Yokosawa, K ; Kuriki, S. (ur.)*. Sapporo : Hokkaido University Press, 2008. 134-136

12. **Supek, Selma**; Josef Golubic, Sanja; Bryant, Jennifer; Donahue, Chris; Montaña, Rebecca; Adair, John; Hart, Blaine; Knoefel, Janice; Stephen, Julia; Aine, Cheryl. Neuromagnetic auditory activity reflects differences between normal aging, MCI and AD subjects: An oddball study, *Biomagnetism: Transdisciplinary Research and Exploration* Kakigi, K ; Yokosawa, K ; Kuriki, S. (ur.). Sapporo: Hokkaido University Press, 2008. 171-173
11. Sušac A, Ilmoniemi RJ, **Supek S**. Early visual responses to upright and inverted faces. Proceedings of the 14th International Conference on Biomagnetism Biomag 2004, Halgren E, Ahlfors S, Hamalainen M, Cohen D. (Eds), Boston, 2004, pp 445-46
10. **Supek, S.:** Dynamic MSI: Temporally constrained vs. temporally unconstrained models, *Biomedizinische Technik*, **46-S2**, 233-236, 2001.
9. **Supek, S.:** Dynamic imaging of the working human brain, In: R. Magjarevic (ed.) IFMBE Proceedings - MEDICON 2001, IX Mediterranean Conference on Medical and Biological Engineering and Computing, Volume I, pp. 27-30, 2001.
8. **Supek, S.:** Numerical simulation studies on neuromagnetic source discrimination: When, where, and how many. In: T. Jarm, T. Kotnik, and D. Miklavcic (Eds.). Proceedings of the 3<sup>rd</sup> International Conference on Bioelectromagnetism, Faculty of Electrical Engineering, Ljubljana, TM-1L, pp. 39-40, 2000.
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6. **Supek, S.:** Dynamic neuromagnetic source imaging: Multi-source parameter estimation using global minimizers. In: R. Magjarevic (ed). *Biomedical Measurement and Instrumentation*, Proceedings of the 8<sup>th</sup> International IMEKO Conference on Measurement in Clinical Medicine, KoREMA, Zagreb, 1998, pp. 10-3 - 10-5.
5. **Supek, S.**, Aine, C.J.: Temporal dynamics of multiple neuromagnetic sources: Simulation and empirical studies. *Biomedizinische Technik*, **42-S1**: 64-67, 1997.
4. **Supek, S.**, Aine, C.J.: Evaluation of MUSIC-based initial source modeling assumptions for spatio-temporal fitting of simulated multi-source neuromagnetic data. In: L. Deecke, C. Baumgartner, G. Stroink, S.J. Williamson, eds. *Biomagnetism: Fundamental Research and Clinical Applications*, IOS Press, Elsevier Science, Amsterdam, 1995, pp. 463-466.
3. Aine, C.J., **Supek, S.**, George, J.S., Ranken, D., Best, E., Tiew, W., Vigil, V., Flynn, E., Wood, C.: MEG Studies of human vision: Retinotopic organization of V1. In: L. Deecke, C. Baumgartner, G. Stroink, S.J. Williamson, eds. *Biomagnetism: Fundamental Research and Clinical Applications*, IOS Press, Elsevier Science, Amsterdam, 1995, pp. 153-161.
2. Aine, C.J., George, J.S., **Supek, S.**, Maclin, E.L. Noninvasive studies of human visual cortex using neuromagnetic techniques. Technical Digest on Noninvasive Assessment of the Visual System, 1991. Optical Society of America, Washington, D.C.1: 162-165, 1991.
1. Aine, C.J., George, J.S., Medvick, P.A., **Supek, S.**, Flynn, E.R., Bodis-Wallner, I: Identification of multiple sources in transient evoked neuromagnetic responses. In: *Advances in Biomagnetism*, Plenum Press, New York, 1989, pp. 193-196.

### **Review papers published in proceedings with national review**

4. **Supek, Selma.** Biomagnetizam: Funkcionalno oslikavanje mozga i srca, Liječničke novine, **87**, ožujak 2010, str. 54-57
3. **Supek, Selma.** Metode za funkcionalno oslikavanje mozga čine um vidljivim, u Žebec, Mislav-Stjepan ; Sabol, Gabrijela ; Šakić, Marija ; Kotrla Topić, Marina (ur.), *Mozak i um - trajni izazov čovjeku*, Biblioteka ZBORNICI, knjiga **32**, 55-66, 2006
2. **Supek, S.:** Dinamičko oslikavanje moždanih funkcija magnetoencefalografijom, Zbornik 16. Ljetne škole mladih fizičara, 2000, pp. 1-7.
1. **Supek, S.:** Functional brain mapping by magnetoencephalographic techniques. In: V. Paar, ed. USA - Croatia Scientific Cooperation 1963-1993, Školska knjiga, Zagreb, pp. 46-52, 1995.

### **Editor of the proceedings books**

8. **Supek, Selma** and Josef Golubic, Sanja (Eds.). NeuroMath COST Action BM0601: Neurodynamic insight into functional connectivity, cognition, and consciousness, March 26-27, 2010, Dubrovnik, Croatia, Lausanne : *Frontiers in Computational Neuroscience, 2010*  
[http://frontiersin.org/Community/EventDetails.aspx?eid=944&va=1&d=0&sname=NeuroMath\\_COST\\_Action\\_BM0601\\_&name=All%20Events](http://frontiersin.org/Community/EventDetails.aspx?eid=944&va=1&d=0&sname=NeuroMath_COST_Action_BM0601_&name=All%20Events)
7. **Supek, Selma** and Sušac, Ana (Eds.) IFMBE Proceedings Series, **Vol. 28**, 17<sup>th</sup> International Conference on Biomagnetism, Advances in Biomagnetism – Biomag2010, March 28 – April 1, 2010, Springer-Verlag, Heidelberg, 2010, XX, 458 p., ISBN 978-3-642-12196-8 (print), 978-3-642-12197-5 (electronic), Softcover
6. **Supek, Selma;** Sušac, Ana; Josef Golubić, Sanja (Eds.), Biomag2010 Book of Abstracts, 17<sup>th</sup> International Conference on Biomagnetism – Biomag2010, March 28 – April 1, 2010, Dubrovnik, Croatia, *Frontiers in Neuroscience Methods, 2010*  
[http://frontiersin.org/Community/EventDetails.aspx?eid=846&va=1&d=0&sname=Biomag\\_2010\\_17th\\_Internation&name=All%20Events](http://frontiersin.org/Community/EventDetails.aspx?eid=846&va=1&d=0&sname=Biomag_2010_17th_Internation&name=All%20Events)
5. Supek, Selma (Ed.) Book of Abstracts, Joint COST B27/SAN Training School: Neurofeedback and ADHD & International Course and Conference MIND AND BRAIN VI: Neuroplasticity of Brain and Behavior, April 16-21, 2009 in Dubrovnik, Croatia, [www.brain.com.hr](http://www.brain.com.hr)
4. **Supek, Selma** and Magjarević, Ratko (Eds.). Book of Abstracts, First symposium on translational research of the brain and heart: Achievements and challenges in knowledge and technology transfer, February 18, 2008, Zagreb, Croatia, Zagreb, 2008.
3. Dulčić, Antonije; Glumac, Zvonko; Godinović, Nikola; Jonke, Larisa; Milat, Ognjen; Milin, Matko; Planinić, Mirko; Roller-Lutz, Zvezdana; Sever, Marko; Skenderović, Hrvoje; **Supek, Selma** (ur.). Knjiga sažetaka 5. znanstvenog sastanka Hrvatskog fizikalnog društva , Zagreb, 2007.



2. **Supek, S. (Ed.)** The NFSI-99 Book of Abstracts, 2<sup>nd</sup> International Symposium on Noninvasive Functional Source Imaging within the Human Brain and Heart, September 3-7, 1999, Zagreb, Croatia, ISBN 853-97885-0-1
1. **Supek, S. (Ed.)** The NFSI-99 Proceedings: 2<sup>nd</sup> International Symposium on Noninvasive Functional Source Imaging within the Human Brain and Heart, September 3-7, 1999, Zagreb, Croatia, Biomedizinische Technik, Vol. 44. Supplement 2, 1999 ISSN 0939-4990

### ***Invited lectures at international meetings***

25. **Supek, Selma:** *Scientific Misconduct..* First INFANS Workshop, January 15-16. 2020, Beaune France
24. **Supek, Selma:** *Gender Awareness.* First INFANS Workshop, January 15-16. 2020, Beaune France
23. **Supek, Selma:** *Neurodynamic functional brain imaging using magnetoencephalography. Invited 2-hour Tutorial Lecture,* IUPESM2018, World Congress on Medical Physics and Biomedical Engineering, Prague, June 3-8, 2018 <http://www.iupesm2018.org/>
22. Sušac, Ana, **Supek, Selma:** *MEG studies on dynamic cortical networks: Integrated view on processes of perception and cognition.* Regional Biophysics Conference 2012 - Book of Abstracts, Zakrzewska, Joanna ; Živić, Miroslav ; Andjus, Pavle (ur.). Beograd, Društvo biofizičara Srbije, 2012. 23-23
21. **Supek, Selma:** *MEG – Neurodynamic insight into cortical networks alterations related to healthy aging and neurodegeneration,* 2012 World Congress on Medical Physics and Biomedical Engineering – WC2012, May 26-31, 2012, Beijing, China, Mini-symposium on Magnetoencephalography, May 31, 2012
20. Sušac, Ana; Ilmoniemi, Risto; Pihko, Elina; Nurminen, Jussi; Ranken, Doug; Josef Golubić, Sanja; Grilj, Veljko; Huonker, Ralph; Haueisen, Jens; Vecchiato, Giovanni; Babiloni, Fabio; **Supek, Selma:** *Neurodynamics of cortical networks activated by faces and simple visual stimuli.* Final meeting of the NeuroMath COST Action BM0601, May 20-21, 2011, Rome, Italy
19. **Supek, Selma:** *MEG – Neurodynamic insight into cortical processing pathways,* 5<sup>th</sup> International Summer School on Emerging Technologies in Biomedicine “High Throughput Communication between Brain and Machines”, European COST Action NeuroMath (BM0601) September 26-October 1, 2010, Patras, Greece, <http://biosignal.med.upatras.gr/school2010/Programme.html#Speakers>
18. Sušac, Ana; Ilmoniemi, Risto; Pihko, Elina; Nurminen, Jussi; Ranken, Doug; **Supek, Selma.** *Face activated neurodynamic cortical networks,* WGs and MC Meeting and Workshop of the NeuroMath COST Action BM0601: Neurodynamic insight into Functional connectivity, cognition and consciousness, March 27-28, 2010, Dubrovnik, Croatia, March 27, 2010
17. **Supek, S.:** *Neuromagnetic insight into cortical dynamics: Simulation and empirical studies,* Joint COST B27/SAN Training School: Neurofeedback and ADHD & International Course and Conference MIND AND BRAIN VI: Neuroplasticity of Brain and Behavior, April 16-21, 2009 in Dubrovnik, Croatia, April 16, 2009

16. **Supek, S.:** *Cortical neurodynamics: From sensory perception and cognition toward a neural correlate of consciousness*, Regional Biophysics Conference 2009, February 10-14, 2009 (February 13, 2009), Linz, Austria
15. **Supek, S.:** *Neurodynamic imaging in the assessment of sensory and cognitive functions in health and disease*, First Symposium Toward translational research in brain and heart studies: Achievements and challenges in knowledge and technology transfer, February 18, 2008, Zagreb, Croatia
14. **Supek, S.:** *MEG measures of cognitive neurodynamics*, II. Christmas Biophysics Workshop, December 18-19, 2007, Bled, Slovenia
13. **Supek, S.:** *Neurodynamic imaging – insight into neurocognitive development and disorders. 2.* Croatian Congress of Neuroscience, Presidential Symposium, May 18-19, 2007, Zagreb, Croatia
12. **Supek, S.:** *Magnetoencephalography: an insight into cognitive neurodynamics*, University of Groningen RuG School of Behavioral and Cognitive Neuroscience BCN, Mini-symposium on topics in Sensory Neural Processing, June 20, 2006
11. **Supek, S.:** *Images of mind: Challenges in multi-source resolution. Invited lecture* International Course on Mind and Brain III: Audition, Language, Communication, April 26 - May 4, 2003, IUC Dubrovnik, Croatia
10. **Supek, S.:** *From brain signals to brain activity.* International Course on Mind and Brain III: Audition, Language, Communication, April 26 - May 4, 2003, IUC Dubrovnik, Croatia
9. **Supek, S.:** *Neuromagnetism and human vision.* Brain, Mind and World: Beyond Cognitivism, June 24 - 27, 2002, IUC Dubrovnik, Croatia
8. **Supek, S.:** *Dynamic neuroimaging and its applications.* International Course on Mind and Brain II, October 15-19, 2001, IUC Dubrovnik, Croatia
7. **Supek, S.:** *Functional brain imaging: Insight into a neural basis of intelligent behavior.* International Course on Mind and Brain II, October 15-19, 2001, IUC Dubrovnik, Croatia
6. **Supek, S.:** *Dynamic imaging of the working brain*, MEDICON 2001, 9<sup>th</sup> Mediterranean Conference on Medical and Biological Engineering and Computing, June 12-15, 2001, Pula, Croatia.
5. **Supek, S.:** *Mind and Brain: The working brain as revealed by noninvasive neuroimaging methods.* Conference on Mind and Brain: An Interdisciplinary approach, October 27-29, 2000, IUC Dubrovnik, Croatia.
4. **Supek, S.:** *Physics and the brain.* 15<sup>th</sup> International Conference for Physics Students, August 4-11, 2000, Zadar, Croatia.
3. **Aine, C.J.,** Stephen, J., Huang, M., Christner, R., **Supek, S.:** *Basic human visual studies in MEG: Past and present with improved analysis.* 2<sup>nd</sup> International Symposium on Noninvasive Functional Source Imaging within the Human Brain and Heart, September 3-7, 1999, Zagreb, Croatia. Book of Abstracts, S. Supek (Ed.), 24, 1999.

2. Aine, C.J., Supek, S., Ranken, D., George, J.S., Flynn, E.R.: **MEG Studies of human vision: Identification of areas V1 and V2.** The 9<sup>th</sup> International Conference on Biomagnetism, Book of Abstracts, 10-11, 1993
1. George, J.S., Aine, C.J., Supek, S., Ranken, D.M.: *Neuromagnetic studies of the functional organization of the human visual system.* An International Symposium on Functional Neuroimaging: Looking at the Mind, November 5-6, 1992, Boston, MA

### ***Invited lecture at a national meeting***

**5. Supek, S.** *Magnetoencefalografija: od signala do dinamičkih kortikalnih mreža, Javna tribina Kliničko inženjerstvo: "Novi" zdravstveni radnici za novo zdravstveno doba" povodom Svjetskog dana kliničkog inženjerstva 21. 10. – GECD2019, Hrvatski liječnički zbor, velika dvorana, 18. listopada 2019, 10:00 – 14:00*

**4. Supek, S.** *Kliničko inženjerstvo u funkcionalnom oslikavanju mozga magnetoencefalografijom, Javna tribina Kliničko inženjerstvo za zdravlje i zdravstvo" povodom Svjetskog dana kliničkog inženjerstva 21. 10. – GECD2018, KBC Zagreb, dvorana "Hugo Botteri", 22. listopada 2018, 15:15 – 18:00*

**3. Supek, S.:** *Dinamičko neurooslikavanje ljudskog mozga: Postignuća i izazovi, Simpozij o istraživanju i bolestima mozga, I. Izazovi i smjerovi suvremenog istraživanja mozga, u okviru Tjedna mozga, 16. ožujka 2016, Odbor za neuroznanost i bolesti mozga Razreda za medicinske znanosti HAZU, 2016, Zbornik Simpozija o istraživanju i bolestima mozga, I. Izazovi i smjerovi suvremenog istraživanja mozga pp. 18-19, 2016*

**2. Supek, S.:** *Signali mozga – slike uma, MedIL Seminar znanstvenog novinarstva, MedILS, Split, Croatia, May 5-7, 2006*

**1. Supek, S.:** *Dinamičko oslikavanje moždanih funkcija magnetoencefalografijom, Zbornik 16. Ljetne škole mladih fizičara, 2000, pp. 1-7.*

### ***Contributions at international scientific meetings***

72. Josef Golubic, Sanja; Susac, Ana; Ralph Huonker, Jens Haueisen, **Selma Supek.** Early attentional modulation of the neural network evoked with the auditory paired-click paradigm: An MEG study, *International Conference of Time Processing and Time Perception, ICTTP 2014 Procedia - Social and Behavioral Sciences.* Elsevier, 2014. 195-196
71. Susac, Ana; **Supek, Selma.** MEG studies on dynamic cortical networks: Integrated view on processes of perception and cognition, *Regional Biophysics Conference 2012 - Book of Abstract, Zakrzewska, Joanna ; Živic, Miroslav ; Andjus, Pavle (Eds).* Beograd : Društvo biofizičara Srbije, 2012, 23-23
70. Susac, Ana; Bubic, Andreja; Josef Golubic, Sanja; Huonker, Ralph; Goetz, Theresa; Haueisen, Jens; **Supek, Selma.** Attentional modulation of the earliest visual neuromagnetic responses, *BIOMAG 2012, Book of Abstracts, Tallon-Baudry, Catherine ; Bertrand, Oliver (Eds.).* Paris, 2012. 276-277

69. Josef Golubic, Sanja; Susac, Ana; Huonker, Ralph; Haueisen, Jens; **Supek, Selma**. Attentional modulation of the M50 cortical network underlying the auditory gating out phenomenon, *BIOMAG 2012, Book of Abstracts*, Tallon-Baudry, Catherine ; Bertrand, Oliver (Eds.). Paris, 2012. 293-293
68. Josef Golubic, Sanja; Aine, Cheryl J.; Stephen, Julia M.; Caklovic, Lavoslav; Adair, John C.; Knoefel, Janice E.; **Supek, Selma**. Prefrontal deficits in the M50 network correlate with neuropsychological function in dementia of the Alzheimer's type // *BIOMAG2012, Book of Abstracts*, Tallon-Baudry, Catherine ; Bertrand, Oliver (Eds.). Paris, 2012. 148-149
67. **Supek, Selma**: MEG – Neurodynamic insight into cortical networks alterations related to healthy aging and neurodegeneration, 2012 World Congress on Medical Physics and Biomedical Engineering – WC2012, May 26-31, 2012, Beijing, China
66. Susac, Ana; Josef Golubic, Sanja; Bubic, Andreja; Huonker, Ralph; Gotz, Theresa; Haueisen, Jens; **Supek, Selma**. Attentional modulation of the earliest visual neuromagnetic responses. 18th International Conference on Biomagnetism – Biomag2012, August 26 -31, 2012, Paris, France
65. Josef Golubic, Sanja; Susac, Ana; Huonker, Ralph; Haueisen, Jens; **Supek, Selma**. Attentional modulation of the M50 cortical network underlying the auditory gating out phenomenon. 18th International Conference on Biomagnetism – Biomag2012, August 26 -31, 2012, Paris, France
64. Josef Golubic, Sanja; Aine, Cheryl J.; Stephen, Julia M.; Caklovic, Lavoslav; John C. Adair, John C.; Janice E. Knoefel Janice E.; **Supek, Selma**. Prefrontal deficits in the M50 network correlate with neuropsychological function in dementia of the Alzheimer's type. 18th International Conference on Biomagnetism – Biomag2012, August 26 -31, 2012, Paris, France
63. Josef Golubic, Sanja; Aine, Cheryl J.; Stephen, Julia M.; John C. Adair, John C.; Janice E. Knoefel Janice E.; **Supek, Selma**. Effects of neurodegeneration on the topology and dynamics of the M50 cortical network: An MEG study. World Congress of Medical Physics and Biomedical Engineering – WC2012, May 26-31, 2012, Beijing, China
62. Susac, Ana; **Supek, Selma**. Unattended visual change detection: An MEG spatio-temporal source localization study. *SiNAPSA Neuroscience Conference 2011 Book of Abstracts / Osredkar, Damjan ; Koritnik, Blaž ; Pelko, Miha (Eds.) Ljubljana : SiNAPSA, Slovenian Neuroscience Association, 2011, 121-121.*
61. Josef Golubić, Sanja; Susac, Ana; Huonker, Ralph; Haueisen, Jens; **Supek, Selma**. Earliest Cortical Activity Evoked by Visual Stimuli of Increasing Size: A Neuromagnetic Study, 16<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping, June 6-10, 2010, Barcelona, Spain, *OHBM Book of Abstracts*. 2010
60. Andre Rupp, Anita Siebert, **Selma Supek** , Daniel Pressnitzer. Role of the N100 to model temporal asymmetry in the auditory system, 17<sup>th</sup> International Conference on Biomagnetism – Biomag2010, March 28 – April 1, 2010, Dubrovnik, Croatia, Conference Abstract, Front. Neurosci. doi: 10.3389/conf.fnins.2010.06.00230
59. Susac, Ana; Ilmoniemi, Risto; Pihko, Elina; Nurminen, Jussi; Ranken, Doug; **Supek, Selma**. Face activated neurodynamic cortical networks. WGs and MC Meeting and Workshop of the NeuroMath COST Action BM0601: Neurodynamic insight into Functional connectivity, cognition and consciousness, March 27-28, 2010, Conference Abstract, Front. Neurosci. doi: 10.3389/conf.fnins.2010.05.00005

58. Vecchiato, Giovanni; Susac, Ana; Margeti, Stavroula; **Supek, Selma**; Planinić, Maja; Babiloni, Fabio. The change of the brain activity during balance scale task solving. WGs and MC Meeting and Workshop of the NeuroMath COST Action BM0601: Neurodynamic insight into Functional connectivity, cognition and consciousness, March 27-28, 2010, Conference Abstract, Front. Neurosci. doi: 10.3389/conf.fnins.2010.05.00036
57. Josef Golubic, Sanja; Aine, Cheryl; **Supek, Selma**. Sensitivity of early and late neuromagnetic auditory activity to degenerative processes in MCI and Alzheimer disease, *Joint workshop for COST actions Consciousness and Neuromath November 29- December 1, 2009, Proceedings of the conference Consicousness and its measures.2009.* 86-87 (poster,sažetak,znanstveni).
56. Josef Golubic, Sanja; Aine, Cheryl; **Supek, Selma**. Neuromagnetic and neuropsychological measures in discriminating between aging, MCI, and AD subject categories, *10th International Summer School on Biophysics: Supramolecular Structure and Function, Book of Abstracts.* 2009. 117
55. Susac, Ana; **Supek, Selma**. Spatio-temporal analysis of simulated neuromagnetic responses to faces, *NeuroMath Workshop: Book of Abstracts.* NeuroMath Workshop Leuven, March 12-13, 2009, Katholieke Universiteit Leuven, Belgium, 71, 2009.
54. **Supek, Selma**. Cortical neurodynamics: From sensory perception and cognition toward a neural correlate of consciousness, Regional Biophysics Conference 2009, *Programme and Book of Abstract / Pohl, Peter (ur.).* Linz, 2009. 102-102
53. Susac, Ana; Ilmoniemi, Risto; Pihko, Elina; Ranken, Doug; **Supek, Selma**. Cortical neurodynamics of face processing assessed by MEG, *3rd Christmas Biophysics Workshop: Organized Molecular Systems / Vuletić, Tomislav (ur.).* Zagreb, 2008. 17
52. **Supek, Selma**. Cortical neurodynamics estimation, *Program and Book of Abstracts / Cleermans, Axel (ur.).* Ghent, Belgija, 2008. 18-18
51. Susac, Ana; Ilmoniemi, Risto; Ranken, Doug; **Supek, Selma**. Neural substrate of target detection in an MEG oddball study with faces, *BIOMAG 2008 Book of Abstracts.* 2008.
50. **Supek, Selma**; Josef Golubic, Sanja; Bryant, Jennifer; Donahue, Chris; Montañ o, Rebecca; Adair, John; Hart, Blaine; Knoefel, Janice; Stephen, Julia; Aine, Cheryl. Neuromagnetic auditory activity reflects differences between normal aging, MCI and AD subjects: An oddball study, *Biomag2008 Book of Abstracts / Kuriki, S ; Yoshimine, T ; Ueno, S. (ur.).* Sapporo, 2008. 145-146
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### **Contributions at national meetings**

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25. Josef Golubic, Sanja; Aine, Cheryl J.; Stephen, Julia M.; Caklovic, Lavoslav; Adair, John C.; Knoefel, Janice E.; **Supek, Selma**. Selective activation of the prefrontal cortex: Preclinical marker for Alzheimer's disease? // *Book of Abstracts, 4. Croatian Congress of Neuroscience, / Croatian Institute for Brain Research, Zagreb : Croatian Society for Neuroscience, 2013. 53-53*
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23. **Supek, Selma**; Kosanovic, Roman; Josef Golubic, Sanja; Sušac, Ana. MEG istraživanja neurodinamike i topologije kortikalnih mreža evociranih vidnim podražajima rastuće velicine // *Knjiga sažetaka 8. znanstvenog sastanka Hrvatskog fizikalnog društva / Požek, Miroslav ; Ban, Ticijana ; Bilušić, Ante ; Dominis Prester, Predrag ; Gajovic, Andreja ; Kumericki Krešimir ; Kurecic Ivana ; Pavin Nenad ; Radolic Vanja ; Szilner, Suzana ; Tutiš, Eduard (ur.). Zagreb : Hrvatsko fizikalno društvo, 2013. 139-139*

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15. Josef Golubić, Sanja; Sušac, Ana; Štingl, Krunoslav; **Supek, Selma**. Numeričke simulacije neurodinamike fokalnih i distribuiranih izvora. Knjiga sažetaka 5. Znanstvenog sastanka Hrvatskog fizikalnog društva / Dulčić, Antonije ; Glumac, Zvonko ; Godinović, Nikola ; Jonke, Larisa ; Milat, Ognje ; Milin, Matko ; Planinić, Mirko ; Roller-Lutz, Zvezdana ; Sever, Marko ; Skenderović, Hrvoje ; Supek, Selma (ur.). Zagreb, 2007. 148
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1. **Supek, S.:** Funkcionalna organizacija ljudskog vizualnog korteksa magnetoencefalografskom tehnikom. Prvi znanstveni sastanak Hrvatskog fizikalnog društva, Zagreb, 28.-30. rujna 1994., Knjiga sazetaka, 127, 1994.

## Seminars at international institutions and round-table discussions at international meetings

6. **Supek, S.:** "*MEG studies on face activated cortical networks and stimulus size-related location biases*", Seminars at the Mind Research Network, Albuquerque, NM, USA, May 6, 2011, 13:00
5. **Supek, S.:** "*MEG studies of the dynamic cortical networks of the human visual cortex*", Brain Talks seminars at the Multi-Modal Imaging Laboratory, Department of Radiology, University of California San Diego (UCSD), San Diego, CA, USA, April 28, 2011, 12:00.
4. **Supek, S.:** "*Neuromagnetic studies on early visual processing*", Seminars at the Institute for Biomedical Engineering and Informatics, Technical University, Ilmenau, Germany, July 9, 2007, 14:00.
3. **Supek, S.:** "*Parameter estimation accuracy in magnetic source imaging*", Seminars at the BioMag Laboratory, Helsinki University Central Hospital, Helsinki, Finland, April 26, 2002, 9:00.
2. Round table: *Young physicists in the aging physics community: where is the perspective?* (moderator V. Paar, A. Wolfendale, **S. Supek**, S.D. Bosanac, F. Burnet, M. Major, A. Siber), 15th International Conference for Physics Students, Monday, August 7, 2000, 20:00, Zadar, Croatia.
1. **Supek, S.:** "*Multisource resolution in meg: numerical simulations and visual studies*", Seminars at the Department of Clinical Sciences and Biomedical Imaging, Institute of Advanced Biomedical Technologies (ITAB), University "G. D'Annunzio", Chieti, Italy, May 10, 2000, 18:00.

## Public lectures and seminars in Croatia

30. **Supek, S.** *Što je biofizika i zašto je bitna / What is biophysics and why it matters*, **Affiliate Event of the Biophysics Week 2018**, X-gimanzija Ivan Supek, kino dvorana na 3. katu, 14. ožujka 2018, 13:15 – 14:45
29. **Supek, S.** *Transformativne uloga biofizike u istraživačkim i visokoškolskim programima / Transformative role of biophysics in research and higher education programs*, **Affiliate Event of the Biophysics Week 2018**, Filozofski fakultet Sveučilišta u Zagreb, D-VII, 12. ožujka 2018, 17:00 – 19:00
28. **Supek, S.** *Transformativna uloga biofizike / Transformational role of biophysics*, **Affiliate Event of the Biophysics Week 2017**, "Priroda uživo", Hrvatsko prirodoslovno društvo, Knjižnica Bogdana Ogrizovića, 9. ožujka 2017, 18:00 – 20:00
27. **Supek, S.** *Magnetoencefalografija (MEG): Neurodinamička istraživanja senzornih procesa i nove dijagnostičke mogućnosti*, Tjedan mozga 2014, Sveučilište u Zagrebu, Medicinski fakultet, Nova vijećnica, 10. ožujka 2014, 17:00 – 19:00

26. **Supek, S.** *Magnetoencefalografija (MEG) – Neinvazivni uvid u dinamičke kortikalne mreže*, CFI-IRB ‘Znanstveni četvrtak’, 27. studenog 2013., IRB-III, 18:00
25. **Supek, S.** Kako mozak radi?, Neformalni seminar Studentske sekcije Hrvatskog fizikalnog društva (SSHFD), Fizički odsjek, F-13, Zagreb, 8. studenog 2012., 13:00
24. **Supek, S.** *Magnetoencefalografija (MEG) - neinvazivna lokalizacija epileptičkog žarišta*, Epi-Centar, Zagreb, 23. travnja 2012.
23. **Supek, S.** Magnetoencefalografija – neinvazivno oslikavanje kortikalne dinamike, Kolokvij Društva matematičara i fizičara, Rijeka, 10. ožujka 2011, 18:30.
22. **Supek, S.** *Neinvazivno funkcionalno oslikavanje mozga: magnetoencefalografija (MEG)*, Farmaceutsko-biokemijski fakultet, Zavod za fiziku, 19. siječnja 2010., 18:00
21. **Supek, S.** *Magnetoencefalografija (MEG) - neinvazivna lokalizacija epileptičkog žarišta*, Epi-Centar, Zagreb, 19. travnja 2008.
20. **Supek, S.** gost okruglog stola s temom ‘Žene u znanosti’ u okviru *Festivala znanosti*, srijeda, 25. travnja 2007, 17:15
19. **Supek, S.:** *"Pričamo o biofizici"*  
Journal Club Studentske sekcije HFD-a, srijeda, 18. siječnja 2006, 14 - 16 sati
18. **Supek, S.:** *"Signali mozga – slike uma"*, MedILS Škola znanstvenog novinarstva, MedILS, Split, 6. svibnja, 2006
17. **Supek, S.:** *"Fizika i mozak"*, *Tjedan fizike* u okviru programa obilježavanja *Svjetske godine fizike (WYP2005)*, Fizički odsjek, PMF, Sveučilište u Zagrebu, 10. studeni 2005.
16. **Supek, S.:** *"Zašto nas biomagnetizam zanima već 40 godina?"* Izvjestaj o sudjelovanju na 14th International Conference on Biomagnetism, Boston, August 8 -12, 2004, *Hrvatsko biofizičko društvo*, utorak, 25. siječnja 2005, 14:00 sati
15. **Supek, S.:** *"Magnetoencefalografija – uvid u kognitivnu neurodinamiku"* EpiCentar Zagreb, četvrtak, 24. studeni 2005. u 12:00
14. **Supek, S.:** "Magnetoencefalografija - izazovi u prostorno-vremenskom lokaliziranju neuronske aktivnosti", Odsjek za psihologiju, Filozofski fakultet, Sveučilište u Rijeci, petak, 21. siječnja 2005, 15:30 sati
13. **Supek, S.:** *‘Funkcionalnim oslikavanjem do kognitivne neuroznanosti’*, Odsjek za psihologiju I Odsjek za filozofiju, Filozofski fakultet, Sveučilište u Rijeci, petak, 21. siječnja 2005, 14:00 sati
12. **Supek, S.:** *"Pričamo o biofizici"* Journal Club Studentske sekcije HFD-a, utorak, 1. lipnja 2004, 14 - 16 sati
11. **Supek, S.:** *“Neinvazivno oslikavanje moždanih funkcija”* Nastavna sekcija Hrvatskog fizikalnog društva, utorak 18. svibnja 2004., 19 sati

10. **Supek, S.:** "*Kako znamo kako mozak radi*", Festival znanosti, petak, 30. travnja 2004., 18:30-19:30 sati
9. **Supek, S.:** "*Slike uma*", Tjedan mozga na Institutu Ruđer Bošković, utorak, 11. ožujka 2003., IRB-III, 16:00 sati
8. Kovačević, M., Jelaska, Z., Matasović, R., **Supek, S.:** "*Predstavljanje novog sveučilišnog poslijediplomskog studija Jezična komunikacija i kognitivna neuroznanost - JEKON*", Sveučilište u Zagrebu, Mala vijećnica, Trg maršala Tita 14, utorak, 11. ožujka 2003, 13:00 sati
7. **Supek, S.:** "*Metode za funkcionalno oslikavanje mozga čine um vidljivim*" Okrugli stol "Stoljeće uma", Institut društvenih znanosti "Ivo Pilar", ponedjeljak, 10. ožujka 2003, Marulićev trg 19/I, 10-14 sati
6. **Supek, S.:** "*Biofizika - znanost 21. stoljeća*", Seminari studentske sekcije Hrvatskog fizikalnog društva, ponedjeljak, 26.3. 2001., Fizički odsjek PMF-a
5. **Supek, S.:** "*Magnetoencefalografija u istraživanjima moždanih funkcija*" Institut Ruđer Bošković, Seminar Zavoda za molekularnu genetiku, srijeda 22. travanj 1998.
4. **Tribina:** "*Biofizika u hrvatskoj: stvarnost ili iluzija?*" (**gost tribine**) Studentska sekcija Hrvatskog fizikalnog društva, srijeda 5. studeni 1997., 17 sati
3. **Supek, S.:** "*Magnetoencefalografija - neinvazivna metoda za funkcionalno oslikavanje mozga*", Hrvatsko biofizičko društvo, srijeda 26. studeni, 1997. 14 sati i 30 minuta
2. **Supek, S.:** "*Lokalizacija kortikalnih aktivnosti magnetoencefalografijom*" Seminar Instituta za fiziku, Sveučilišta u Zagrebu, četvrtak, 23. ožujka 1995., 14 sati
1. **Supek, S.:** "*Proučavanje funkcija mozga magnetoencefalografijom*" Nastavna sekcija Hrvatskog fizikalnog društva, utorak 21. veljace 1995., 19 sati

## Promotion of science in media

### 1. 30 public lectures and public round-table discussions

2. MEG booth at the *Open Day at the Department of Physics*, April 4, 2014

### 3. TV interviews at HRT-1:

- "Znanstveni krugovi" (March 6, 2018)
- "Društvena mreža – Znanstveni četvrtak" (April 6, 2017)
- "Trenutak spoznaje" (March, 2012)
- "Znanstvena petica" (April, 2010)
- "Znanstvene novosti" (September, 2006; February, 2008)
- "Trenutak spoznaje" (June, 2002; March, 2003; March, 2007)
- "Znanstvena sučeljavanja" (April, 2002)

### 3. Radio interviews:

- **HR-3** – journalist Tanjom Rudež, 1994;  
- journalist Blanka Jergović "Znanost i društvo", April 13, 2016 and April 20, 2016
- **Radio Splita**, May 2006; September, 2006
- **Radio Dubrovnik** – April, 2003; April, 2004, September, 2006;  
"Plavi razgovor", April, 2010.
- **HR-1**, "Eppur si muove" – April 7, 2014.

5. Interview to **Jutarnji list – Jutarnji2**, "Nove metode otkrivaju tajne ljudskog ponašanja", 12. 02. 2007, p. 33, journalist Tanja Rudež

5. Interview for **CROATIA putni časopis - Inflight Magazine**, *Images of the working brain and heart – Slike aktivnog mozga i srca*, 140-144, Spring 2010, journalist Davorka Vukov-Colić

### 6. Reviewer of the books

Ivan Supek: Izgradnja Instituta "Ruđer Bošković", Breza, Zagreb, 2020

Ivan Supek: Eseji svjetla i tame, Breza, Zagreb, 2020

## EDUCATIONAL ACTIVITIES

**Selma Supek** developed *new courses in biophysics* (*Foundations of Biophysics, Seminars in Foundations in Biophysics, and Biophysics*) and developed *new doctoral courses* (listed in the table below) within the doctoral programs at the Department of Physics, Faculty of Science and the School of Medicine as well as within the university program *Language Communication and Cognitive Neuroscience* of the University of Zagreb.

*From the academic year 2014/2015 Selma Supek is offering the following courses in English:*

1. **Biophysics** – diploma and integrated course
2. **Neurodynamics** – doctoral course
3. **Functional localization of neurodynamic sources** – doctoral course

### COURSES HELD IN ENGLISH

Course title:	Study program:	Academic year:
<b>Biophysics</b>	IST F, IV year Erasmus + students BO – Biology Dept students	<b>2016/2017</b> <b>2017/2018</b>

### Diploma and integrated programs courses developed and held since 1996:

Course title:	Study program:	Academic year:
Biophysics	IST F, IV year PFM, V year PFI, IV year PF, IV year PFT, III year PFK, III year	<b>2007/2008 – now</b> Two groups
Biophysics	PF, IV year PFM, V year	1999/2000 till 2006/2007
Foundations of Biophysics	Physics program (dipl inž fiz), III year PFI, IV year since 2002	1996/1997 till 2006/2007
Seminar – Foundations of Biophysics	Physics program (dipl inž fiz), III year PFI, IV year since 2002	1996/1997 till 2006/2007



**Doctoral courses developed and held since 1999:**

<b>Course title:</b>	<b>Study program:</b>	<b>Academic year:</b>
<b>Neurodynamics</b>	Doctoral program in physics, branch biophysics Department of Physics, Faculty of Science, University of Zagreb	<b>2008/2009 - now</b>
<b>Functional localization of neurdynamic sources</b>	Doctoral study program in neuroscience, Faculty of Medicine, University of Zagreb	<b>2007/2008 - now</b>
Functional brain imaging	Language Communication and Cognitive Neuroscience, - JEKON, University of Zagreb	2002/2003
Noninvasive methods for functional brain imaging	Doctoral program in physics, branch biophysics Department of Physics, Faculty of Science, University of Zagreb	2001/2002 till 2006/2007
Noninvasive methods for the structural and functional brain imaging	Postgraduate scientific program in biomedicine, School of Medicine	1999/2000 till 2001/2002