

Curriculum Vitae

PERSONAL INFORMATION

Name and surname **Marina Ilakovac Kveder**
Academic title Ph. D.
Year and institution of PhD obtained 1988., Faculty of Science University of Zagreb
Address Ruđer Bošković Institute, Bijenička 54, Zagreb, Croatia
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Citizenship Croatian
Date and place of birth 05.03.1958. Zagreb

WORK EXPERIENCE¹ (CHRONOLOGICALLY)

Date (from – until) 2014. –
Institution Rudjer Boskovic Institute
Position Head of the Laboratory for magnetic resonances
Work field EPR spectroscopy, soft condensed matter

Date (from – until) 2013. –
Institution Rudjer Boskovic Institute
Position senior scientist with tenure
Work field EPR spectroscopy, soft condensed matter

Date (from – until) 2008. – 2013.
Institution Rudjer Boskovic Institute
Position senior scientist
Work field EPR spectroscopy, soft condensed matter

Date (from – until) 2003. – 2008.
Institution Rudjer Boskovic Institute
Position senior research associate
Work field EPR spectroscopy, soft condensed matter

Date (from – until) 1998. – 2003.
Institution Rudjer Boskovic Institute
Position research associate
Work field EPR spectroscopy, biophysics

Date (from – until) 1988. – 1998.
Institution Rudjer Boskovic Institute
Position scientific assistant
Work field EPR spectroscopy, biophysics

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¹ all information in the document should be entered chronologically – from the most recent to the oldest

Date (from – until) 1982. – 1988.
Institution Rudjer Boskovic Institute
Position postgraduate student
Work field medical physics, biophysics

EDUCATION² (CHRONOLOGICALLY)

Date 1988.
Place Zagreb
Institution Faculty of Science, University of Zagreb
Title of qualification awarded Ph. D. in physics

Date 1985.
Place Zagreb
Institution Faculty of Science, University of Zagreb
Title of qualification awarded M. Sc. in physics

Date 1981.
Place Zagreb
Institution Faculty of Science, University of Zagreb
Title of qualification awarded B. Sc. in physics

TRAINING (CHRONOLOGICALLY)

Year 1992. – 1994.
Place Frankfurt, Germany
Institution Goethe University, Alexander von Humboldt postdoctoral fellowship
Subject and skills covered multidimensional NMR spectroscopy of proteins

Year 1986. – 1988.
Place Ljubljana, Slovenia
Institution J.Stefan Institute, University of Ljubljana
Subject and skills covered EPR spectroscopy, NMR spectroscopy and imaging

LANGUAGES

MOTHER TONGUE Croatian

ENGLISH LANGUAGE

Speaking excellent
Writing excellent
Reading excellent

OTHER FOREIGN LANGUAGES³

Language German, French, Italian
Speaking basic
Writing basic
Reading basic

International projects

Collaborator at DAAD project *Magneto-structural correlations in molecular magnetic complexes studied by electron spin resonance spectroscopy* (principal investigator dr. sc. Dijana Žilić), 2019-2021.

Representative of Croatia (MC member) in EU project COST CA15128 action entitled *Molecular Spintronics*, 2016. – 2020.

Representative of Croatia (MC member) in EU project COST MP1302 action entitled *NanoSpectroscopy*, 2013. – 2017.

Representative of Croatia (MC member) in EU project COST CM1005 action entitled *Supramolecular chemistry in water*, 2011. – 2015.

Project leader of Alexander von Humboldt Research Group Linkage Programme entitled *The study of soft condensed matter by EPR: dynamics in glassy and crystalline matrices*, 2011. – 2014.

Coworker at international EU project COST P15 action entitled *Advanced paramagnetic resonance methods in molecular biophysics*, 2005. – 2010.

Coworker at international EU project COST D22 action entitled *Protein – lipid interaction*, 2000. – 2006.

Coworker at Croatian-Slovenian bilateral cooperation program, J. Stefan Institute, Ljubljana, Slovenija, 1999. – 2005.

Coworker at U.S. – Croatian Joint project (NIH), Ohio State University, Columbus, USA, 1996. – 1998.

National projects

Principal investigator at the project now in the state of evaluation entitled *Elucidating the importance of spin-spin interactions as a tool for new approaches in ESR studies of materials*, 2018.-2022.

Principal investigator at the project entitled *Low-temperature molecular dynamics of systems exhibiting lattice disorder probed by ESR*, 2014.-2018.

Coworker and principal investigator (2014) at the project entitled *Molecular structure and dynamics of systems with paramagnetic centres* supported by the Croatian Ministry of Science, Education and Sports, 2007. – 2014.

Coworker at the project entitled *Electron spin resonance in systems with paramagnetic centres* supported by the Croatian Ministry of Science, Education and Sports, 2002. – 2006.

Coworker at the project entitled *Spectroscopic study of lipoproteins* supported by the Croatian Ministry of Science, Education and Sports, 1996. – 2002.

Coworker at the project entitled *Spectroscopic investigation of biological macromolecules* supported by the Croatian Ministry of Science, Education and Sports, 1991. – 1996.

TEACHING

(CHRONOLOGICALLY; UNDERGRADUATE, GRADUATE, POSTGRADUATE STUDY PROGRAMMES)

1999. - teaching *Biomembranes* for graduate students at the Faculty of Science, University of Zagreb;

2009. - 2016. co-lecturer of *Biophysics of cell* for graduate students at the Faculty of Science, University of Zagreb;

2006. - co-lecturer of *Fundamentals of magnetic resonance methods and Supramolecular structures and oxidative stress* at the postgraduate interdisciplinary doctoral studies of Molecular biosciences organized by Josip Juraj Strossmayer University Osijek, University of Dubrovnik and Rudjer Boskovic Institute;

2006. - teaching *Biomembranes: lipid-protein interactions* at the postgraduate doctoral study of Neurosciences, Medical School, University of Zagreb;

2000. - 2018. teaching *Spin labeling in biophysics* at the postgraduate studies in Physics/Biophysics at the Faculty of Science, University of Zagreb;

2000. - 2104. co-lecturer of *EPR spectroscopy and Fluorescence spectroscopy* at the postgraduate doctoral study at the Faculty of Science, University of Zagreb;

1999. - teaching *Biomembranes* for graduate students at the Faculty of Science, University of Zagreb;

1989.-1991. exercises in *Molecular biophysics* for graduate students at the Faculty of Science, University of Zagreb;

MENTORSHIP OF DEFENDED DOCTORAL AND MASTER DISSERTATIONS AND TRAINING OF YOUNG RESEARCHERS AND SCIENTISTS

(CHRONOLOGICALLY)

2015. – mentor of Ph. D. thesis in physics at the Faculty of Science, University of Zagreb expected to be finished in 2019.;

2016. – mentor of Ph. D. thesis in Molecular biosciences at the University of Osijek;

2013 – mentor of Ph. D. thesis in physics/biophysics at the Faculty of Science, University of Zagreb;

2002. - co-mentor of two bachelor thesis in physics, consultant in three bachelor thesis in chemistry, one bachelor and one Ph. D. thesis in molecular biology at the Faculty of Science, University of Zagreb;

ORGANIZATIONAL SKILLS AND COMPETENCES

(CHRONOLOGICALLY; ORGANIZATION OF HOME AND INTERNATIONAL SCIENCE EVENTS)

5.-9.5.2014. organizer of the workshop entitled *Dynamics in soft matter probed by advanced EPR techniques*.

1997. – 2009. member of the organizing committees of *International summer schools on biophysics: Supramolecular structure and Function*, Rovinj, Croatia.

2007. member of the scientific committee of *International Symposium «Spectroscopy in theory and practice»*, Nova Gorica, Slovenija.

2002. member of the scientific committee of *1st Congress of molecular biosciences*, Opatija, Croatia.

1997. member of the organizing committee of *Alexander von Humboldt Symposium: Science and Ethics*, Zagreb, Croatia.

MEMBERSHIP IN SCIENCE ORGANIZATIONS AND BODIES

(CHRONOLOGICALLY; HOME AND INTERNATIONAL ORGANIZATIONS AND BODIES)

Croatian Society for Biophysics
Croatian Physical Society
Croatian Humboldt Club
Croatian-Austrian Society

COMMISSIONS, COMMITTEES, BOARDS AND WORK GROUPS

(CHRONOLOGICALLY; HOME AND INTERNATIONAL)

2009. - member of the University committee for university interdisciplinary postgraduate doctoral studies organized by Josip Juraj Strossmayer University Osijek, University of Dubrovnik and Rudjer Boskovic Institute;

2006. - member of the committee for interdisciplinary postgraduate doctoral studies of Molecular biosciences organized by Josip Juraj Strossmayer University Osijek, University of Dubrovnik and Rudjer Boskovic Institute;

2001. – 2004. Member of the committee for postgraduate studies (natural sciences, biology) at Faculty of Science, University of Zagreb.

1990. – 1992. president of the Croatian Biophysical Society 1990-1992.

PAPERS

(CHRONOLOGICALLY; RESEARCH BOOKS, HOME AND INTERNATIONAL RESEARCH JOURNALS, HOME AND INTERNATIONAL CONFERENCE PROCEEDINGS; PLEASE WRITE THEIR IMPACT FACTOR)

E.I. Baibekov, J. Jurec, B. Rakvin, M. Kveder: Rabi oscillations as a tool to detect strong coupling of paramagnetic center with the nuclear spin bath. *J. Non-Crys. Solids.* **519** (2019) 119440. IF = 2.12.

J. You, D. Carić, B. rakvin, Z. Štefanić, K. Užarević, M. Kveder: matrix material structure dependence of the embedded electron spin decoherence. *J. Chem. Phys.* **150** (2019) 164124-9.

I. Saric, J. Jurec, E. Reijerse, N. Maltar-Strmečki, B. Rakvin, M. Kveder: Impact of disorder on formation of free radicals by gamma-irradiation: multi-frequency EPR studies of trehalose polymorphs. *J. Phys. Chem. Solids.* **123** (2018) 124-132. IF= 2.207.

B. Rakvin, D. Carić, M. Kveder: Enhanced accuracy of the microwave field strength measurement in a CW-EPR by pulsed modulation technique. *J. Magn. Reson.* **287** (2018) 123-127. IF = 2.43.

J. Jurec, B. Rakvin, M. Jokić, M. Kveder: Electron spin decoherence as a measure of nuclear spin bath frustration. *J. Non-Crys. Solids.* **471** (2017) 435-438. IF = 2.12.

M. Cardona, M. Kveder, U. Baisch, M. Probert, D. Magri: Water- soluble beta-aminobisulfonate building blocks for pH and Cu²⁺ indicators. *RSC Advances.* **6** (2016) 84712-84721. IF = 3.11.

M. Kveder, B. Rakvin, Jokić, E. Reijerse: A comparative study of electron spin decoherence at X- and W- band frequencies as a function of local disorder. *J. Non-Crys. Solids.* **414** (2015) 27-32. IF = 2.12.

L.Vojta, D. Carić, V. Cesar, J. Antunović Dunić, H. Lepeduš, M. Kveder, H. Fulgosi: TROL-FNR interaction reveals alternative pathways of electron partitioning in photosynthesis. *Sci. Rep.* **5** (2015) 1-9. IF = 4.26.

D. Carić, B. Rakvin, M. Kveder, K. Junker, P. Walde, E. Reijerse: A multifrequency EPR study of poly(PADPA) synthesized with *Trametes versicolor* laccase from the aniline dimer p-

aminodiphenylamine (PADPA) in the presence of anionic vesicles. *Curr. Appl. Phys.* **15** (2015) 1516-1520. IF = 1.97.

I. Šarić, M. Jokić, B. Rakvin, M. Kveder, N. Maltar-Strmečki: The effect of thermal treatment of radiation-induced EPR signals of different polymorphic forms of trehalose. *Appl. Radiat. Isot.* **83** (2014) 41-46. IF = 1.13.

M. Kveder, B. Rakvin, Jokić, E. Reijerse: Frozen-in disorder probed by electron spin relaxation. *Solid State Commun.* **167** (2013) 23-26. IF = 1.53.

M. Kveder, I. Šarić, D. Merunka, M. Jokić, S. Valić, B. Rakvin: The anhydrous solid trehalose: low-temperature EPR study of glassy and boson peak modes. *J. Non-Crys. Solids.* **375** (2013) 19-24. IF = 1.60.

D. Merunka, M. Kveder, M. Jokić, B. Rakvin: Effect of glassy modes on electron spin-lattice relaxation in solid ethanol. *J. Magn. Reson.* **228** (2013) 50-58. IF = 2.3.

M. Andreis, D. Carić, N. Šijaković Vujičić, Milan Jokić, Mladen Žinić, M. Kveder: Self-assembly of gelator molecules in liquid crystals studied by ESR. *Chem. Phys.* **403** (2012) 81-88. IF = 1.96.

D. Merunka, M. Kveder, B. Rakvin: Effect of thermally activated dynamics on electron spin-lattice relaxation in glasses. *Chem. Phys. Lett.* **515** (2011) 19-22. IF = 2.15.

M. Kveder, D. Merunka, A. Ilakovac, B. Rakvin: A multi-frequency EPR spectroscopy approach in the detection of boson peak excitations. *J. Magn. Reson.* **213** (2011) 26-31. IF = 2.3.

M. Kveder, M. Jokić, B. Rakvin: Fast motion in molecular solids at low temperatures: evidence from a pulsed EPR study of nitroxyl radical relaxation. *J. Chem. Phys.* **134** 044531 (2011). IF = 3.16.

M. Gavella, M. Kveder, V. Lipovac: Modulation of ROS production in human leukocytes by ganglioside micelle. *Braz. J. Med. Biol. Res.* **43** (2010) 942. IF = 1.14.

M. Kveder, D. Merunka, M Jokić, J. Makarević, B. Rakvin: Electron spin-lattice relaxation in solid ethanol: Effect of nitroxyl radical hydrogen bonding and matrix disorder. *Phys. Rev. B* **80** (2009) 052201. IF = 3.77.

M. Kveder, D. Merunka, M Jokić, B. Rakvin: EPR study of crystalline and glassy ethanol. *J. Non-Cryst. Solids* **354** (2008) 5201-5203. IF = 1.60.

M. Kveder, D. Merunka, M Jokić, B. Rakvin: Low temperature electron-spin relaxation in the crystalline and glassy states of solid ethanol. *Phys. Rev. B* **77** (2008) 094202-094202-6. IF = 3.77.

M. Gavella, M. Kveder, V. Lipovac, D. Jurašin, N. Filipović-Vinceković: Antioxidant properties of ganglioside micelles. *Free Rad. Res.* **41** (2007) 1143-1150. IF = 3.28.

M. Kveder, D. Merunka, A. Ilakovac, J. Makarević, M. Jokić, B. Rakvin: Direct evidence for the glass-crystalline transformation in solid ethanol by means of a nitroxide spin probe. *Chem. Phys. Lett.* **419** (2006) 91-95. IF = 2.15.

M. Kveder, Ž. Marinić, A. Kriško, D. Vikić-Topić, G. Pifat: Lipid-Protein Interactions in Human Plasma LDL Evidenced by Magnetic Resonance. *Chem. Phys. Lipids* **141** (2006) 225-229. IF = 2.15.

J. L. R. Arrondo, X. Coto, J. C. G. Milicua, M. Kveder, G. Pifat: Interaction of alcohols with serum LDL. An infrared study. *Chem. Phys. Lipids* **141** (2006) 205-215. IF = 2.15.

M. Kveder, M. Andreis, J. Makarević, M. Jokić, B. Rakvin: The EPR study of low molecular weight organogels by means of a nitroxide spin probe. *Chem. Phys. Lett.* **420** (2006) 443-447. IF = 2.15.

A. Kriško, I. Piantanida, M. Kveder, G. Pifat: The effect of heparin on structural and functional properties of low density lipoproteins. *Biophys. Chem.* **119** (2006) 234-239. IF = 2.28.

M. Gavella, M. Kveder, V. Lipovac, R. Rakoš, G. Pifat: Trisialoganglioside GT1b prevents increase in sperm plasma membrane molecular ordering induced by in vitro lipid peroxidation, *J. Androl.* **26**(6) (2005) 724-731. IF = 2.53.

A. Kriško, M. Kveder, S. Pečar, G. Pifat: A study of caffeine binding to human serum albumin, *Croatia Chemica Acta* **78**(1) (2005) 71-77. IF = 0.61.

A. Kriško, M. Kveder, G. Pifat: Effect of caffeine on oxidation susceptibility of human plasma low density lipoproteins, *Clinica Chimica Acta* **355** (2005) 47-53. IF = 2.85.

M. Kveder, R. Rakoš, M. Gavella, V. Lipovac, G. Pifat, S. Pečar, M. Schara: The EPR investigation of membrane fluidity upon external oxidative stimulus, *Appl. Magn. Reson.* **27** (2004) 77-86. IF = 0.83.

D. Carić, V. Tomišić, M. Kveder, N. Galić, G. Pifat, V. Magnus, M. Šoškić: Absorption and fluorescence spectra of ring-substituted indole-3-acetic acids, *Biophys. Chem.* **111** (2004) 247-257. IF = 2.28.

A. Kriško, I. Piantanida, M. Kveder, G. Pifat: The analysis of β -carotene absorbance for studying structural properties of human plasma low density lipoproteins, *Anal. Biochem.* **331** (2004) 177-182.

IF = 2.58.

- M.Kveder, G.Pifat, M.Gavella, V.Lipovac: Effect of gangliosides on the copper-induced oxidation of human low-density lipoproteins, *Biophys. Chem.* **104** (2003) 45-54. IF = 2.28.
- M.Kveder, A.Kriško, G.Pifat, H.-J. Steinhoff: The study of structural accessibility of free thiol groups in human low-density lipoproteins, *Biochim. et Biophys. Acta.* **1631** (2003) ; 239-245.
- S.Antolić, M.Kveder, B.Klaić, V.Magnus, B.Kojić-Prodić: Recognition of the folded conformation of of plant hormone (auxin, IAA) conjugates with glutamic and aspartic acids and their amides, *J. Mol. Struct.* **560** (2001) 223-237. IF = 1.40.
- J.Brnjas-Kraljević, M.Kveder, G.Pifat, S.Pečar, M.Schara: The ESR kinetic study of lipid phase in HDL, *Croatica Chemica Acta.* **74** (2001) 147-160. IF = 0.61.
- E.Vass, M.Hollosi, M.Kveder, B.Kojić-Prodić, M.Čudić, Š.Horvat: Spectroscopic evidences of β -turn in N-glycated peptidomimetics related to leukine-enkephalin, *Spectrochimica Acta A*, **56** (2000) 2479-2489. IF = 1.98.
- M.Kveder, G.Pifat, B.Vukelić, S.Pečar, M.Schara: Structural aspects of thiol-specific labeling of human plasma LDL, *Biopolymers (Biospectroscopy)*. **57** (2000) 336-343. IF = 2.88.
- M.Kveder, G.Pifat, A. Jelovečki, B. Klaić, S.Pečar, M.Schara: The EPR study of LDL perturbed by alcohols with different molecular architecture, *Alcohol.* **21** (2000) 1-7. IF = 2.26.
- B.Kojić-Prodić, A.Antolić, M.Kveder, I.Žigrović, J.Kidrič, Š.Horvat: Conformational studies in solid state and solution of protected C-terminal dipeptide fragment (Boc-Phe-Pro-NH₂) of morphiceptine, *Croatica Chemica Acta.* **72**(2-3) (1999) 259-277. IF = 0.61.
- M.Kveder, G.Pifat, S.Pečar, M.Schara: The influence of lower alcohols on the surface lipid monolayer in LDL, *Croatica Chemica Acta.* **71**(1) (1998) 189-198. IF = 0.61.
- M.Kveder, G.Pifat, S.Pečar, M.Schara, P.Ramos, H.Esterbauer: The interaction of lower alcohols with apoB in spin labeled human plasma LDL, *Chem. Phys. Lipids.* **87** (1997) 125-135. IF = 2.15.
- M.Kveder, G.Pifat, S.Pečar, M.Schara, P.Ramos, H.Esterbauer: Nitroxide reduction with ascorbic acid in spin labeled human plasma LDL and VLDL, *Chem. Phys. Lipids.* **85** (1997) 1-12. IF = 2.15.
- D.Lassen, C.Lücke, M.Kveder, A.Mesgarzadeh, J.Schmidt, B.Specht, A.Lezius, F.Spener, H.Rüterjans: Three-dimensional structure of bovine heart fatty-acid-binding protein with bound palmitic acid, determined by multidimensional NMR spectroscopy, *Eur.J.Biochem.* **230** (1995) 266-80. IF = 4.25.
- M.Kveder, G.Pifat, S.Pečar, M.Schara: The ESR characterization of molecular mobility in the lipid surface layer of human serum lipoproteins, *Chem. Phys. Lipids* **70** (1994) 101-108. IF = 2.15.
- M.Kveder, G.Pifat, S.Pečar, M.Schara: Molecular dynamics of surface lipids in human serum lipoproteins studied by ESR, *Croatica Chemica Acta* **65** (1992) 201-9. IF = 0.61.
- M.Kveder, S.Pečar, M.Nemec, M.Schara: Nitroxide radicals as a model system for biotransformations of radicals in tissues, *Acta Pharm.Jugosl.* **41** (1991) 391-400. IF = 0.16.
- F.Demšar, M.Kveder, S.Rugelj, A.Blinc, M.Šentjurs, S.Pečar: Hydroxylamines as oxygen-sensitive procontrast agents for in vivo magnetic resonance imaging, *J. Magn. Reson.* **95** (1991) 281-85. IF = 2.3.
- M.Šentjurs, M.Schara, M.Auersperg, M.Jezernik, M.Kveder: Characterization of malignant tissues by EPR, *Studia Biophysica* **136** (1990) 201-208. IF = 0.33.
- M.Kveder, M.Šentjurs, M.Schara: Spin probe reduction in cells and tissues, *Magn. Reson. Med.* **8** (1988) 241-47. IF = 3.27.
- M.Kveder, I.Zupančič, G.Lahajnar, R.Blinc, D.Šuput, DC Ailion, K.Ganesan, C.Goodrich: Water proton NMR relaxation mechanisms in lung tissue, *Magn. Reson. Med.* **7** (1988) 432-41. IF = 3.27.
- M.Kveder, G.Lahajnar, R.Blinc, I.Zupančič: Non-Brownian water self-diffusion in lung tissue, *Magn. Reson. Med.* **6** (1988) 194-98. IF = 3.27.
- M.Kveder, Ž.Bajzer, M.Zadro: Theoretical aspects of multiple deconvolution analysis for quantification of left to right cardiac shunts, *Phys.Med.Biol.* **32** (1987) 1237-43. IF = 2.7.
- M.Kveder, Ž.Bajzer: Theoretical approach to discrimination of atrial and ventricular septal defects when the left-to-right cardiac shunt is diagnosed by radionuclide angiography, *Phys.Med.Biol.* **31** (1986) 663-68. IF = 2.7.
- M.Kveder, Ž.Bajzer, J.Nosil: A mathematical model for the quantitative study of left to right cardiac shunt, *Phys.Med.Biol.* **30** (1985) 207-15. IF = 2.7.

OTHER RESEARCH ACTIVITIES

(CHRONOLOGICALLY; CHIEF EDITOR OR EDITOR OF RESEARCH BOOK, HOME AND INTERNATIONAL RESEARCH JOURNALS, HOME AND INTERNATIONAL CONFERENCE PROCEEDINGS AND OTHER)

referee of the journals *Physics in Medicine and Biology* and *Chemical Physics Letters*

COMPUTER SKILLS

programming in fortran 77, mathematica

ADDITIONAL INFORMATION AND NOTES

Directly contributed ca 120.000 USD in terms of the purchase of the scientific equipment (Alexander von Humboldt donation for EPR instrumentation and participation in the purchase of fluorimeter and spectrophotometer from NIH project).