

Prof. Goran Bačić, PhD.

Biography:

1995-now - Full Professor, Faculty of Physical Chemistry, University of Belgrade.
1992-95. - Visiting Assistant Professor, Dartmouth Medical School, Hanover, NH, USA
1986-88. - Visiting Research Associate, College of Medicine, University of Illinois at Urbana-Champaign, Urbana, USA. (collaboration with P.Lauterbur, Nobel prize for physiology and medicine, 2003)
1985 - Visiting Scientist, University of Oxford, UK (British Council Academic Link Fellowship)

Major achievements:

1. First oximetry EPR imaging **G.Bacic**, F.Demsar, Z.Zolnai and H.M.Swartz. Contrast enhancement in ESR imaging: Role of oxygen. *Magn . Reson . Med. Biol.* 1(1988)55-65.
2. First 3D EPR image R.K.Woods, **G.Bacic**, P.C.Lauterbur*, and H.M.Swartz. Three dimensional electron spin resonance imaging. *J.Magn.Reson .* 84(1989)247-254. *Nobel prize laureate for physiology and medicine, 2003, for magnetic resonance imaging (including EPR).
3. First real noninvasive in vivo EPR experiment **G.Bacic**, M.J.Nilges, R.L.Magin, T.Walczak, and H.M.Swartz. In vivo localized ESR spectroscopy reflecting metabolism. *Magn . Reson . Med.* 10(1989)266-272 .
4. First high resolution EPR microscopy of biological object J.W.Dobrucki, F.Demsar , T.Walczak, R.K.Woods, **G.Bacic** and H.M.Swartz. Electron spin resonance microscopy of an in vitro tumor model. *Brit. J. Cancer* 61(1990)221-224.

Selected papers:

1. F.Demsar, T.Walczak, P.D.Morse II, **G.Bačić**, Z.Zolnai, and H.M.Swartz. Detection of diffusion and distribution of oxygen by fast scan EPR imaging. *J.Magn.Reson.* 76(1988)224-231.
2. **G.Bačić**, M.R.Niesman, H.F.Bennett, R.L.Magin, and H.M.Swartz. Modulation of water proton relaxation rates by liposomes containing paramagnetic materials. *Magn. Reson. Med.* 6(1988)445-458.
3. **G.Bačić**, T.Walczak, F.Demsar, and H.M.Swartz. Electron spin resonance imaging of tissues with lipid-rich areas. *Magn. Reson. Med.* 8(1988)209-219.
4. L.D.Ma, R.L.Magin, **G.Bačić**, and F.Dunn. The effects of D₂O on the phase transition of LUV suspensions as detected by ultrasound spectroscopy and electron spin resonance. *Biochim. Biophys. Acta* 978(1989)283-292.
5. **G.Bačić**, M.J.Nilges, T.Walczak, and H.M.Swartz. The use of *in vivo* EPR to follow the pharmacokinetics of drugs. *Phys. Medica* 5(1989)307-313.
6. **G.Bačić**, M.R.Niesman, R.L.Magin, and H.M.Swartz. NMR and ESR study of liposome delivery of Mn²⁺ to murine liver. *Magn. Reson. Med.* 13(1990)44-61.
7. M.Sentjurc, **G.Bačić**, and H.M.Swartz. Reduction of doxyl stearate by ascorbate in unilamellar liposomes. *Arch. Biochem. Biophys.* 282(1990)207-213.
8. **G.Bačić**, K.J.Liu, J.A.O'Hara, R.D.Harris, K.Szybinski, F.Goda, and H.M.Swartz. Oxygen tension in murine tumor: A combined EPR and MRI study. *Magn. Reson. Med.* 30(1993)568-572.
9. **G.Bačić**, M.Schara, and S.Ratković. An ESR study of manganese binding in plant tissue. *Gen.Physiol.Biophys.* 12(1993)49-54.
10. H.M.Swartz, **G.Bačić**, B.Friedman, F.Goda, O.Y.Grinberg, P.J.Hoopes, J.J.Jiang, K.J.Liu, T.Nakashima, J.A.O'Hara, and T.Walczak. The measurement of pO₂ *in vivo*, including human subjects by EPR. In *Oxygen Transport to Tissue XVI*, (M.C.Hogan, Ed.), CRC Press, 1994, 119-128.

11. K.Mäder, **G.Bačić**, and H.M.Swartz. *In vivo* detection of anthralin derived free radical in the skin of hairless mice by low frequency Electron Paramagnetic Resonance spectroscopy. *J. Invest. Dermatol.* 104(1995)114-117.
12. H.M.Swartz, **G.Bačić**, B.Gallez, F.Goda, P.James, K.J.Liu, J.Jiang, K.Mader, T.Nakashima, J.A.O'Hara, T.Shima, and T.Walczak. *In vivo* EPR spectroscopy. In *Bioradicals Detected by ESR Spectroscopy*, (H.Ohya-Nishiguchi and L.Packer, Eds.) Birkhauser Verlag, Basel, 1995, 285-299.
13. K.J.Liu, **G.Bačić**, P.J.Hoopes, J.Jiang, H.K.Du, L.C.Ou, J.F.Dunn, and H.M.Swartz. Assessment of cerebral pO₂ by EPR oximetry in rodents. *Brain Res.* 685(1995)91-98.
14. F.Goda, J.A.O'Hara, E.S.Rhodes, K.J.Liu, J.F.Dunn, **G.Bačić**, and H.M.Swartz. The changes of oxygen tension in experimental tumors after a single dose of X-ray irradiation. *Cancer Res.* 55(1995)2249-2252.
15. J.A.O'Hara, F.Goda, K.J.Liu, **G.Bačić**, P.J.Hoopes, and H.M.Swartz. The pO₂ in a murine tumor after irradiation: An *in vivo* Electron Paramagnetic Resonance oximetry study. *Radiat. Res.* 144(1995)222-229.
16. K.Mader, **G.Bačić**, A.Domb, H.M.Swartz. Characterization of microstructures in drug delivery systems by EPR spectroscopy. *Proc. Controlled Released Soc.*, 22, 1995, 780-781.
17. K.Mader, **G.Bačić**, A.Domb, R.Langer, H.M.Swartz. Non-invasive *in vivo* characterization biodegradable polymers by EPR spectroscopy and NMR imaging. *Proc. Controlled Released Soc.*, 22, 1995, 77-78.
18. S.Todorović, Z.Giba, D.Grubišić, S.Veljović-Jovanović, **G.Bačić**. Detection of Mn²⁺ by EPR spectroscopy in biological species of different origin. *I Regional Symposium "Chemistry and Environment"*. 1995, Vrnjačka Banja, Proceedings 619-622.
19. B.Gallez, F.Goda, **G.Bačić**, J.A.O'Hara, J.Jiang, J.F.Dunn, H.M.Swartz. Use of nitroxides in assessing perfusion, oxygenation, and viability of tissues: *In vivo* EPR and MRI studies. *Magn. Reson. Med.* 34(1996)97-105.
20. P.E.James, **G.Bačić**, O.Y.Grinberg, F.Goda, J.F.Dunn, S.K.Jackson, H.M.Swartz. Endotoxin induced changes in intrarenal pO₂, measured by *in vivo* Electron Paramagnetic Resonance oximetry and Magnetic Resonance Imaging. *Free Radical Biol. Med.* 21(1996)25-34.
21. F.Goda, **G.Bačić**, J.A.O'Hara, B.Gallez, H.M.Swartz, J.F.Dunn. The relationship between pO₂ and perfusion in two murine tumors after X-ray irradiation: A combined gadopentate dimeglumine dynamic Magnetic Resonance Imaging and *in vivo* Electron Paramagnetic Resonance oximetry study. *Cancer Res.* 56(1996)3344-3349.
22. H.M.Swartz and **G.Bačić**. EPR and *In Vivo* EPR: Role for Experimental and Clinical NMR Studies. In *Encyclopedia of Nuclear Magnetic Resonance*, (D.M.Grant and R.K.Harris, Eds.), John Wiley & Sons, 1996, 1928-1938.
23. K.Mäder, **G.Bačić**, A.Domb, O.Elmalak, R.Langer, and H.M.Swartz. Noninvasive *in vivo* monitoring of drug release and polymer erosion from biodegradable polymers by EPR spectroscopy and NMR imaging. *J. Pharm. Sci.* 86(1997)126-134.
24. P.J.Hoopes, K.J.Liu, **G.Bačić**, E.L.Rollet, J.F.Dunn, and H.M.Swartz. Assessment of the response of rodent CNS tissues to EPR oximetry probe materials. In *Oxygen Transport to Tissue XVIII*, (Nemoto and LaManna, Eds.), Plenum Pres, NY, 1997, 13-21.
25. **G.Bačić**. *In vivo* EPR oximetry. *Iugosl. Physiol. Pharmacol. Acta* (1998) 34, 429-445.
26. J.Petković, M.Daković, J.Stanković, B.Babić-Stojić, **G.Bačić**. Application of magnetic resonance techniques in measurements of absorbed dose distribution from radiotherapeutic proton and photon sources. *Iugosl. Physiol. Pharmacol. Acta* 34(1998)189-195.
27. **G.Bačić**. *In vivo* EPR spectroscopy: Principles and applications, in "Physical Chemistry '98", Eds: S.Ribnikar, S.Anić, Society of Physical Chemists of Serbia, Belgrade 1998, 291-297.

28. J.Petković, I.Mladenović, N.Vukelić, M.Mojović, **G.Bačić**. Lanthanide doped alkaline metal sulphates as candidates for EPR dosimetry. *J. Serb. Chem. Soc.* 65(2000)743-754.
29. M.Mojović, J.Petković, **G.Bačić**. Standards in EPR dosimetry, in "Physical Chemistry 2000", Eds: S. Ribnikar, S. Anić, Society of Physical Chemists of Serbia, Belgrade 2000, 294-296.
30. M. Mojović, M. Vuletić, **G. Bačić** and Ž. Vučinić. Oxygen-centered radicals produced by plant plasma membranes: An EPR spin-trap study. *J. Exp. Bot.* 55(2004)2523-2531.
31. **G.Bačić**, Z.Giba, M.Mojović, D.Grubišić, and R.Konjević. Electron Paramagnetic Resonance spectroscopy in the analysis of free radicals in seeds, in "Physical Chemistry 2004", Eds: A. Antić-Jovanović, S. Anić, Society of Physical Chemists of Serbia, Belgrade 2004, 140-142.
32. M. Mojović, M. Vuletić, **G.Bačić**. Detection of oxygen-centered radicals using spin-trap DEPMPO. The effect of oxygen. *Ann. NY Acad. Sci.* 1048(2005)471-475.
33. M. Mojović, I.Spasojević, **G.Bačić**. Detection of hydrogen atom adduct of spin-trap DEPMPO. The relevance for studies of biological systems. *J. Chem. Inf. Mod.* 45(2005) 1716-1718.
34. **G.Bačić** and M. Mojović. EPR spin trapping of oxygen radicals in plants: a methodological overview. *Ann. NY Acad. Sci.* 1048(2005)230-243.
35. M. Mojović, I. Spasojević, M. Vuletić, Ž Vučinić, **G. Bačić**. EPR spin-probe and spin-trap study of free radicals produced by plant plasma membranes. *J. Serb. Chem. Soc.* 70(2005)177-186.
36. M.Daković, M.Kovačević P.R.Andjus, **G.Bačić**. On the mechanism of uranium binding to cell wall of *Chara fragilis*. *Eur. Biophys. J.* 37(2008)1111-1117.
37. I.Spasojević, M.Mojović, A.Ignjatović, **G.Bačić**. Applications of EPR spectroscopy in evaluating oxidative status and antioxidative properties of biochemical systems. *J. Serb. Chem. Soc.* 76(2011)647-677.
38. A.Popović-Bijelić, A.Pavićević, A.Ignjatović, M.Mojović, **G.Bačić**. The binding of nitroxide spin labels to human serum albumin: EPR spectral decomposition as a tool for quantitative assessment. 11th *International Conference on Fundamental and Applied Aspects of Physical Chemistry*, Belgrade, Serbia, (2012) 391-393.