
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Sukstanskii, Alexander L.		POSITION TITLE Associate Professor, Department of Radiology	
eRA COMMONS USER NAME (credential, e.g., agency login) alex63108			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
Kharkov State University, Ukraine	M.S.	06/71	Physics (with honors)
Donetsk State University, Ukraine	Ph.D.	01/80	Physics and Mathematics

A. Personal Statement

I have a very strong background in theoretical physics and mathematics. I have published a number of papers devoted to theoretical analysis of the MR signal formation in biological objects (about 140 publications in total in peer review journals).

Academic Degree of Doctor of Sciences in Physics and Mathematics (1991) awarded by the Higher Certifying Commission under the Council of Ministers of the USSR.

B. Positions

1971-1975 **Junior Research Scientist** at the Institute for Physics and Engineering of the Ukrainian Academy of Sciences. Division of Theoretical Physics (Donetsk, Ukraine).

1975-1983 **Research Scientist** at the Institute for Physics and Engineering of the Ukrainian Academy of Sciences. Theoretical Division of Magnetism and Superconductivity (Donetsk, Ukraine).

1983-1991 **Senior Research Scientist** at the Institute for Physics and Engineering of the Ukrainian Academy of Sciences. Theoretical Division of Magnetism and Superconductivity (Donetsk, Ukraine).

1991-2001 **Principal Research Scientist** at the Institute for Physics and Engineering of the Ukrainian Academy of Sciences. Theoretical Division of Magnetism and Superconductivity (Donetsk, Ukraine).

1992-1995 **Professor of Physics**, Donetsk State University (Donetsk, Ukraine).

1999 **Professor of Mathematics**, Donbass Academy of Building and Architecture (Makeevka, Ukraine)

1998-2000 **Visiting Professor**, Royal Institute of Technology (Stockholm, Sweden)

2000-2004 **Visiting Research Professor** at Mallinckrodt Institute of Radiology, Washington University School of Medicine (St. Louis, USA).

2004-2012 **Senior Scientist** at Mallinckrodt Institute of Radiology, Washington University School of Medicine (St. Louis, USA).

2012- present **Associate Professor** of Radiology at Mallinckrodt Institute of Radiology, Washington University School of Medicine (St. Louis, USA).

Reviewer experience

Magnetic Resonance in Medicine
Journal of Magnetic Resonance
European Journal of Applied Physiology
Journal of Thermal Biology
Physical Review
Journal of Theoretical and Experimental Physics
Journal of Chemical Physics.

Membership

International Society of Magnetic Resonance in Medicine
American Physical Society

C. Selected Peer-reviewed Publications (from 140 in chronological order)

1. **Sukstanskii A.L.**, Yablonskiy D.A., Theory of FID NMR Signal Dephasing Induced by Mesoscopic Magnetic Field Inhomogeneities in Biological Systems, *J. Magn. Reson.*, 151, pp.107-117 (2001).
2. Yablonskiy D.A., **Sukstanskii A.L.**, Leawoods J.C., Gierada D.S., Bretthorst G.L., Lefrak S.S., Cooper J.D., and Conradi M.S., Quantitative *in vivo* assessment of lung microstructure at the alveolar level with hyperpolarized ^3He diffusion MRI, *Proc.Nat.Acad.Sci.*, 99, n. 5, pp. 3111-3116 (2002).
3. **Sukstanskii A.L.**, Yablonskiy D.A., Effect of Restricted diffusion on FID Signal Formation, *J. Magn. Reson.*, 157, n.1, pp. 92-105 (2002).
4. **Sukstanskii A.L.**, Yablonskiy D.A., Gaussian approximation in the theory of MR signal formation in the presence of structure-specific magnetic field inhomogeneities. *J. Magn. Reson.*, 163, n.2, 38-49 (2003).
5. **Sukstanskii A.L.**, J.J.H.Ackerman, Yablonskiy D.A., Effects of barrier-induced magnetization inhomogeneities on diffusion attenuated MR signal, *Magn Reson. Med.*, 50, n.4, 735-742 (2003).
6. **Sukstanskii A.L.**, Yablonskiy D.A., Gaussian approximation in the theory of MR signal formation in the presence of structure-specific magnetic field inhomogeneities. Influence of impermeable inclusions, *J. Magn. Reson.*, 167, n.1, 56-67 (2004).
7. **Sukstanskii A.L.**, J.J.H. Ackerman, Yablonskiy D.A., Effects of permeable boundaries on the diffusion-attenuated MR signal: insights from a one-dimensional model, *J. Magn. Reson.*, 170, 56-66 (2004).
8. **Sukstanskii A.L.**, Yablonskiy D.A., Theoretical model of temperature regulation in the brain during changes in functional activity, *Proc. Nat. Acad. Sci.*, 103, n. 32, pp. 12144-12149 (2006).
9. **Sukstanskii A.L.**, Yablonskiy D.A., Theoretical limits on brain cooling by external head cooling devices, *E. J. Appl. Phys.*, **101**, , pp. 41-49 (2007).
10. **Sukstanskii A.L.**, Yablonskiy D.A., In vivo lung morphometry with hyperpolarized ^3He diffusion MRI: theoretical background, *J. Magn. Reson.*, **190**, 200-210 (2008).
11. Yablonskiy D.A., **Sukstanskii A.L.**, Theoretical models of the diffusion weighted MR signal. *NMR in Biomedicine*, **23**, 661-681 (2010).
12. Dickson J.D., Ash T.W.J., Williams G.B., **Sukstanskii A.L.**, Ansorge R.E., Yablonskiy D.A., Quantitative phenomenological model of the BOLD contrast mechanism. *J. Magn Reson.*, 212, n.1, 17-25 (2011).
13. Yablonskiy D.A., **Sukstanskii A.L.**, Xiang He, BOLD-based Techniques for Quantifying Brain Hemodynamic and Metabolic Properties – Theoretical Models and Experimental Approaches, *NMR in biomedicine* 2013;26(8):963-986.
14. **Sukstanskii A.L.**, Yablonskiy D.A., On the role of Neuronal Magnetic Susceptibility and Structure Symmetry on Gradient Echo MR Signal Formation, *Magn Res Med*, 2013, DOI 10.1002/mrm.24629.
15. **Sukstanskii A.L.**, Exact analytical results for ADC with oscillating diffusion sensitizing gradients, *J. Magn Reson.*, 234, n.1, 135-140 (2013).
16. Yablonskiy D.A., **Sukstanskii A.L.**, Quirk JD, Woods JC, Conradi MS. Probing lung microstructure with hyperpolarized noble gas diffusion MRI: theoretical models and experimental results. *Magn Res Med* 2014;71:486-505.