

PERSONAL DETAILS

Title: Research professor

First name: Ljupco

Surname: Hadzievski

Date of birth: 14 August 1957

Place of birth: Strumica, Macedonia

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CAREER SUMMARY

Date of PhD awarded: 1996

Statement of the academic career:

2005-: Research Professor, Vinca Institute of Nuclear Sciences, Belgrade, Serbia (Head of the Atomic Physics Laboratory 2005-2009)

1998-2005: Associate Research Professor, Vinca Institute of Nuclear Sciences, Belgrade, Serbia and Montenegro

1997-1998: Visiting Professor, IPM, Institute for Studies in Theoretical Physics Mathematics, Tehran, Iran (Course of Computational Physics for graduate students)

1997-1998: Assistant Research Professor, Vinča Institute of Nuclear Sciences, Belgrade, Serbia and Montenegro

1991-1996: PhD student, Vinca Institute of Nuclear Sciences, Belgrade, Yugoslavia

1990-1991: PhD student, University of Iowa, Iowa City, USA

1985-1989: MS student, Vinca Institute of Nuclear Sciences, Belgrade, Yugoslavia

1982-1985: Research Fellow, Center for Application of Radioisotopes in Science and Industry, Skopje, Macedonia

Field of specialization: Complex and nonlinear phenomena in plasma physics and nonlinear optics.

Research Experience

Current research

1. Study of the discrete intrinsic localized modes in nonlinear waveguide lattices. The research is focused on the optical lattices in the photorefractive crystals (SBN) with a saturable nonlinearity and in semiconductor crystals (InP:Fe and CdZnTe:V) with a resonant nonlinearity. Study of the discrete localized modes (solitons, breathers) with the nearest neighbor and long-range interactions: problems of the existence, stability, interactions of the moving localized modes.
2. Studies of strongly nonlinear plasmas by analytic and computer simulation methods with a special focus on relativistic laser-plasma interactions.
3. Theoretical and numerical study of the nonlinear dynamics of the Bose-Einstein condensates in optical lattices.
4. Study of the electrocardiography inverse problem with multi dipole approximation of the heart current sources based on the input signals obtained with standard 12 lead ECG devices.
5. Study of optical micro and nano structured materials, optical sensors based on evanescent field, long period and Bragg grating bends and its applications in medicine.

Former research

Early research (1982-1985) in radioecology and applications of isotope techniques in hydrology. Numerical simulation of the transport of the radionuclides released into the surface and underground waters. Applied research of laser propagation phenomena in the atmosphere (1985-1987). Theory and simulation of nonlinear and turbulent phenomena in plasmas: soliton formation, stability and collapse in Strong Langmuir turbulence (SLT) (1987-1998). Studies of strongly nonlinear plasmas by analytic and computer simulation methods. Relativistic EM solitons in laser-plasma (1997-). Numerical studies of nonlinear dispersive wave systems. Dynamical studies of the continual-discrete nonlinear systems and its application on nonlinear optics and Bose Einstein Condensation (2000-). Study of the electrical activity of the heart and inverse problems in electrocardiography (2002-).

Other:

- Project leader of the large (30 researchers) national multidisciplinary project III45010

(2011-2014)

- Project leader of the national project 141034 (2006-2010);

- Active referee for the journals: Physical Review Letters, Physical Review A, E i B, i Journal of Plasma Physics (over 50 reviewed manuscripts);

- Referee for the research projects of the Ministry of science of the Republic of Serbia and EU FP7 program;

- Editor for the AIP conference proceedings: 1. Physics of Ionized Gases, AIP CP740 (2004); 2. Physics of Ionized Gases, AIP CP876 (2006);

- Annual award from the Vinca Institute, for outstanding research in 2004.

- Chairmen of the Organizing committee of the international conference SPIG2004 (<http://www.vin.bg.ac.yu/spig2004/>) and chairmen of the Scientific committee of SPIG2006 (<http://www.phy.bg.ac.rs/~spig2006/>)

- Member of the Scientific committee and Organizing committees of the international conferences ISCOM 2007 (<http://iscom.ipb.ac.rs/>) and Photonica 2009 (<http://photonica09.phy.bg.ac.rs/>), Chairmen of the Organizing committee of the Photonica2011 (<http://www.vin.bg.ac.rs/photonica2011/>) and member of the Organizing committee of the conference MediNano-3 (<http://www.nanosys.ihtm.bg.ac.rs/Medinano3>)

- Well developed international collaborations: Institute for cosmic research, Moscow and Institute for automation and electrometry, Novosibirsk (1985-1990), Participant on the bilateral project YU-USA JFP-556 (1985-1988). From 1997 he started active collaboration with NIFS, Toki, and ILE, Osaka University from Japan, Photonics research group at Aston University, UK, Tel Aviv University, Israel, Univ. Klaustal-Zellerfeld, Germany and University of California San Diego, USA;

- Supervisor for two master works, three master thesis and two PhD thesis;

- Chairman or member of many committees for reviewing master and PhD thesis and committees for promotion in research and teaching positions;

- Member of the Serbian and European Physical Society and Optical Society of America.;

- During the period 2004-2008 he was director of the Atomic physics laboratory, Intitute Vinca.

Publications: over 50 journal papers, over 30 conference papers (9 invited lectures), 2

issued international patents and 4 patent applications.

List of the selected papers:

- Aleksandra Maluckov, Goran Gligoric, Ljupco Hadzievski, Boris A. Malomed, Tilman Pfau, Stable periodic density waves in dipolar Bose-Einstein condensates trapped in optical lattices, <http://arxiv.org/abs/1202.0145> , accepted for publication in PRL (2012).
- M. D. Petrovic, G. Gligoric, A. Maluckov, Lj. Hadzievski, and B. A. Malomed, Interface solitons in locally linked two-dimensional lattices, Phys. Rev. E 026602, (2011) doi:10.1103/PhysRevE.84.026602
- A. Maluckov, Lj. R. Hadžievski, B. Malomed, Fundamental solitons in discrete lattices with a delayed nonlinear response, Chaos 20, 043113 (2010)
- Lj. R. Hadžievski, G. Gligorić, A. Maluckov, B. Malomed, Interface solitons in one-dimensional locally-coupled lattice systems, Phys. Rev. A 82, 033606 (2010)
- A. Maluckov, Lj. Hadzievski, N. Lazarides, G.P. Tsironis, Extreme events in discrete nonlinear lattices, Phys. Rev. E 79, 025601(R) (2009)
- A. Maluckov, Lj. R. Hadžievski, N. Lazarides, G. P. Tsironis, Left-handed metamaterials with saturable nonlinearity, Phys. Rev. E 77, 046607 (2008)
- Lj. Hadžievski, A. Maluckov, M. Stepić, D. Kip, Power controlled soliton stability and steering in lattices with saturable nonlinearity, Phys. Rev. Lett. 93, 033901, 2004
- L. Hadžievski, A. Maluckov, and M. Stepić, "Dynamics of dark breathers in lattices with saturable nonlinearity," Opt. Express 15, 5687-5692 (2007)
- Bojović B., Hadžievski Lj., Beličev P., *Apparatus and method for cordless recording and telecommunication transmission of three special ECG leads and their processing*, US Patent 7,647,093 (2010).
- Bojović B., Hadžievski Lj., Beličev P., *Device and procedure for visual three-dimensional presentation of ECG data*, US Patent 7,751,875 (2010).