

PERSONAL INFORMATION

Name and surname	Tatjana Miladinović
Date and place of birth	June 24, 1977, Kragujevac, Serbia
Scientific title	PhD in Physics
E-mail	tanja.miladinovic@uni.kg.ac.rs
Educational-scientific / educational-artistic field	Natural sciences
University, Faculty, Organizational unit	University of Kragujevac Institute for Information Technologies Department of Science
Research field and areas	Physics, Atomic, molecular, optical physics, Medical physics.

EDUCATION

BACHELOR

Year	
Place	
Institution	

MASTER STUDIES

Year	2006
Place	Kragujevac, Serbia
Institution	University of Kragujevac, Faculty of Science

DOCTORAL DISSERTATION

Year	2014
Place	Kragujevac, Serbia
Institution	University of Kragujevac, Faculty of Science
Title of doctoral dissertation	Inclusion of non zero momentum of an electron in the estimation of the transition rate in Ammosov-Delone- Krainov theory for the case of low-frequency linearly and

	circularly polarized laser field
Scientific title	PhD in Physics
Research area	Physics, Atomic, molecular, optical physics.

PROFESSIONAL BIOGRAPHY – ELECTION IN RESEARCH OR SCIENTIFIC TITLE

Date	Institution	Scientific title
2006–2009	University of Kragujevac, Faculty of Science	Junior Research Assistant
2009–2015	University of Kragujevac, Faculty of Science	Research Assistant
2015–2020	University of Kragujevac, Faculty of Science	Research Associate

PROFESSIONAL BIOGRAPHY - TRAINING

Year	Institution	Duration

ENGAGEMENT IN THE FORMATION OF SCIENTIFIC PERSONNEL

PARTICIPATION IN NATIONAL PROJECTS FINANCED BY MINISTRY OF EDUCATION/MINISTRY OF SCIENCE AND TECHNOLOGICAL DEVELOPMENT/SCIENCE FUND OF THE REPUBLIC OF SERBIA:

2006–2010	„Theoretical and experimental investigations in microdosimetry and radioecology“ OI141023, principal investigator dr Dragoslav Nikezić, full professor at University of Kragujevac, Faculty of Science
2010–2017	„Experimental and theoretical investigations in radiation physics and radioecology“, OI171021, principal investigator dr Dragoslav Nikezić, full professor at University of Kragujevac, Faculty of Science

PARTICIPATION IN INTERNATIONAL PROJECTS

MEMBERSHIP IN SCIENTIFIC AND PROFESSIONAL ASSOCIATIONS

ORGANIZATION OF NATIONAL/INTERNATIONAL SCIENTIFIC MEETINGS (CONFERENCES, CONGRESSES...)

Organizing committee: 1st International Conference on Chemo and BioInformatics, ICCBIKG 2021, Kragujevac, Serbia, October 26-27, 2021

LIST OF SCIENTIFIC PAPERS:

Monographs, Monographic studies, Thematic anthologies	Sum 1
1. Tatjana Miladinović, Ivan Petrović, Information technology and tourism in Serbia, <i>2nd International scientific Conference Tourism in Function of Development of the Republic of Serbia, Thematic proceedings, Vrnjačka Banja, 1- 3.06., (2017); str. 490–508;</i>	
Papers published in scientific journals of international scientific importance	Sum 31
1. V.M. Ristić, T.B. Miladinović and M.M. Radulović, Transition Rate Dependence on the Non-Zero Initial Momentum in the ADK-Theory, <i>Acta Physica Polonica A</i> , 112, No. 5, 909- 914 (2007); ISSN: 0587-4246; (IF = 0.340 za 2007. godinu; 60/69; oblast: Physics, Multidisciplinary)	
2. V.M. Ristić, T.B. Miladinović and M.M. Radulović, Analyzing the Transition Rates of the Ionization of Atoms by Strong Fields of a CO ₂ Laser Including Nonzero Initial Momenta, <i>Laser Physics</i> , 18, No.10, 1183-1187 (2008); ISSN: 1054-660X; (IF = 0.777 za 2008. godinu; 78/96; oblast: Physics, Applied)	
3. V.M. Ristić, T.B. Miladinović and M.M. Radulović, Calculating Ionization Transition Rate for Circularly Polarized Fields, Including Non-Zero Initial Momentum, <i>Acta Physica Polonica A</i> , 116, No. 4, 504- 506 (2009); ISSN: 0587-4246; (IF = 0.433 za 2009. godinu; 60/71; oblast: Physics, Multidisciplinary)	
4. V.M. Ristić, T.B. Miladinović , J.M. Stevanović, Circularly polarized laser fields, with different Z, including non-zero initial momentum, <i>Acta Physica Polonica A</i> , 119, No. 6 761-763 (2011); ISSN: 0587-4246; (IF = 0.467 za 2010. godinu; 63/80; oblast: Physics, Multidisciplinary)	
5. V.M. Ristić, M.M. Radulović, T.B. Miladinović , Stern-Gerlach Experiment's Interpretations and Noether's Theorem, <i>Int. J. Theor. Phys.</i> , 50, No.11, 3602-3609 (2011); ISSN: 0020-7748; DOI: 10.1007/s10773-011-0867-y; (IF = 0.845 za 2011. godinu; 48/84; oblast: Physics, Multidisciplinary)	
6. T.B. Miladinović , J.M. Stevanović, M.M. Radulović, V.M. Ristić, The energy at which the maximum number of photoelectrons are observed during the ionization of potassium and xenon atoms, <i>Physica Scripta</i> , T149 014047, (2012); ISSN: 0031-8949; DOI:10.1088/0031-8949/2012/T149/014047; (IF = 1.204 za 2011. godinu; 35/84; oblast: Physics, Multidisciplinary)	
7. J.M. Stevanović, T.B. Miladinović , M.M. Radulović and V.M Ristić, Ionization rate for circularly	

- polarized laser fields with modified ionization potential included, *Physica Scripta*, T149 014046, (2012); ISSN: 0031-8949; DOI:10.1088/0031-8949/2012/T149/014046; (IF = 1.204 za 2011. godinu; 35/84; oblast: Physics, Multidisciplinary)
8. **T.B. Miladinović**, V.M. Petrović and V.M. Ristić, Influence of ponderomotive potential and non-zero initial momentum of ejected electron on transition rate in multiphoton ionization, *Acta Physica Polonica A*, 124, No. 4, 658 – 660 (2013); ISSN: 0587-4246; DOI:10.12693-APhysPolA.124.658; (IF = 0.604 za 2013. godinu; 65/83; oblast: Physics, Multidisciplinary)
 9. M.M. Radulović, J.M. Stevanović, **T.B. Miladinović** and V.M. Ristić, The Role of the Non-Zero Initial Momentum and Modified Ionization Potential in the Corrected Ammosov-Delone-Krainov Theory, *Romanian Journal of Physics*, 58, 127-135; (2013), ISSN: 1221-146X; (IF = 0.745 za 2013. godinu; 59/78; oblast: Physics, Multidisciplinary)
 10. V.M. Ristić, M.M. Radulović, **T.B. Miladinović**, J.M. Stevanović, Getting Deeper Insight Into Stopping Power Problems in Radiation Physics Using the Noether's Theorem Corollary, *Nuclear Technology & Radiation Protection*, 29, No.1, 24-27, (2014); ISSN: 1451-3994; (IF = 0.560 za 2014. godinu; 14/34; oblast: Physics, Nuclear Science & Technology)
 11. **T.B. Miladinović**, V.M. Petrović, Quasiclassical approach to tunnel ionization in the non relativistic and relativistic regimes, *Revista Mexicana de Fisica*, 60, No. 4, 290-295, (2014); ISSN: 0035-001X; (IF = 0.339 za 2014. godinu; 74/78; oblast: Physics, Multidisciplinary)
 12. V.M. Petrović, **T.B. Miladinović**, Influence of the spatial and temporal distribution of an incident laser beam profile on the energy distribution of ionized photoelectrons, *JETP*, 119, No. 4, 651-656 (2014); ISSN:1063-7761; DOI: 10.1134/S1063776114100082; (IF = 0.879 za 2014. godinu; 55/78; oblast: Physics, Multidisciplinary)
 13. V. Petrović, **T. Miladinović**, V. Ristić, Single and double tunneling ionization of the noble gases exposed to a linearly or circularly polarized laser field, *Romanian Reports in Physics*, 66, No 4, 929-938 (2014); ISSN:1221-1451; (IF = 1.517 za 2014. godinu; 32/78; oblast: Physics, Multidisciplinary)
 14. **Tatjana B. Miladinović**, Violeta M. Petrović, Relativistic angular distribution of photoelectrons in the tunneling ionization of atoms by a linearly polarized laser field, *Brazilian Journal of Physics*, 45, No. 2, 251 – 257 (2015); ISSN: 0103-9733; DOI: 10.1007/s13538-015-0303-5; (IF = 1.042 za 2015. godinu; 44/79; oblast: Physics, Multidisciplinary)
 15. **Tatjana B. Miladinović**, Violeta M. Petrović, Behavior of the relativistic angular and energy distributions of atoms exposed to a strong and low-frequency circularly polarized laser field, *Chinese Optics Letters*, 13, No. 7, 070005– 4 (2015); ISSN: 1671-7694; DOI:10.3788/COL201513.070005; (IF = 1.899 za 2015. godinu; 32/90; oblast: Physics, Optics)
 16. **Tatjana B. Miladinović**, Violeta M. Petrović, Laser field ionization rates in the barrier-suppression regime, *Journal of Russian Laser Research*, 36, No. 4, 312 – 319 (2015); ISSN: 1071-2836; DOI:10.1007/s10946-015-9505-0; (IF = 0.800 za 2015. godinu; 67/90; oblast: Physics, Optics)
 17. Violeta M. Petrović, **Tatjana B. Miladinović**, Photoelectrons angular and energy distributions from laser-ionized argon atom, *Romanian Journal of Physics*, 60, No. 9-10,1450-1461 (2015); ISSN: 1221-146X; (IF = 1.398 za 2015. godinu; 39/79; oblast: Physics, Multidisciplinary)
 18. **Tatjana B. Miladinović**, Violeta M. Petrović, Behaviour of tunneling transition rate of argon atom exposed to strong low-frequency elliptical laser field, *Pramana journal of physics*, 86, 565– 573, (2016); ISSN: 0304-4289; DOI:10.1007/s12043-015-1023-7; (IF = 0.520 za 2016. godinu; 66/79; oblast: Physics, Multidisciplinary)
 19. Violeta M. Petrović, **Tatjana B. Miladinović**, Effect of the corrected ionization potential and spatial distribution on the angular and energy distribution in tunnel ionization, *Journal of Experimental and Theoretical Physics*, 122, No 5, 813-817, (2016); ISSN:1063-7761; DOI: 10.1134/S1063776116050101; (IF = 1.196 za 2016. godinu; 43/79; oblast: Physics, Multidisciplinary)
 20. Violeta M. Petrović, **Tatjana B. Miladinović**, Improved treatment of the turning point in tunnel ionization of atoms in a low-frequency two color laser field, *Laser Physics Letter*, 13, No. 12, 125401-6pp, (2016);

ISSN:1612-2011; DOI:10.1088/1612-2011/13/12/125401; (IF = 2.537 za 2016. godinu; 29/92; oblast: Physics, Optics)

21. Violeta M. Petrović, **Tatjana B. Miladinović**, Kinetic energy distribution of photoelectrons in the tunnel ionization process in the case of ultrashort laser pulses, *Journal of Nonlinear Optical Physics & Materials*, 25, No.3, 1650040-1, (2016); ISSN: 0218-8635; DOI: 10.1142/S0218863516500405; (IF = 1.000 za 2016. godinu; 71/92; oblast: Physics, Optics)
22. Violeta M. Petrović, **Tatjana B. Miladinović**, Effect of Electron-Electron Correlation on the Nonsequential Ionization Process in a Linearly Polarized Laser Field, *Romanian Journal of Physics*, 62, No. 1-2, Article no. 202, 1-13 (2017); ISSN:1221-146X; (IF = 1.758 za 2016. godinu; 28/79; oblast: Physics, Multidisciplinary)
23. Delibašić S. Hristina, Isaković I. Kristina, Violeta M. Petrović, **Miladinović B. Tatjana**, Estimation of the Influence of the Magnetic Component on the Transition Rate in a Linearly Polarized Laser Field, *International Journal of Theoretical Physics*, 57 No. 2, 406-413 (2018); ISSN:0020-7748; DOI: [10.1007/s10773-017-3572-7](https://doi.org/10.1007/s10773-017-3572-7); (IF = 0.968 za 2017. godinu; 54/78; oblast: Physics, Multidisciplinary)
24. Ivan D. Petrović, Violeta M. Petrović, **Tatjana B. Miladinović**, Theoretical and Expert System Study of the Photoionization Theories, *Proceedings of the National Academy of Sciences, India Section A: Physical Sciences*, 89, No 3, 611-619 (2019); ISSN:0369-8203; DOI: <https://doi.org/10.1007/s40010-018-0500-z>; (IF = 0.754 za 2017. godinu; 46/64; oblast: Physics, Multidisciplinary)
25. **Miladinović B. Tatjana**, Simić S, Danilović N, Jeremić Z.M., Influence of $(0, 1)^*$ Laguerre-Gaussian Field Distribution on Tunneling Ionization Rate, *Journal of Experimental and Theoretical Physics*, 132, No. 5, 753–765 (2021); ISSN:1063-7761; DOI: 10.1134/S1063776121050046; (IF = 1.290 za 2020. godinu; 64/86; oblast: Physics, Multidisciplinary)
26. Marija Zivković Radojević, Neda Milosavljević, **Tatjana B Miladinović**, Slobodan Janković, Marko Folić, Review of compounds that exhibit radioprotective and/or mitigatory effects after application of diagnostic or therapeutic ionizing radiation, *Int. J. Radiat. Biol.* 17, 1-10 (2022); ISSN: 0955-3002; DOI: 10.1080/09553002.2022.2110308; (IF = 3.352 za 2021. godinu; 69/136; oblast: covers resources on radiation research in biology and biophysics, Radiology, Nuclear Medicine & Medical Imaging) (Online ahead of print)
27. **Tatjana B. Miladinović**, Mirko M. Radulović, Jasna M. Stevanović, Effects of the different laser beam profiles on the tunneling ionization with Coulomb correction included, *Romanian Reports in Physics*, 74, Article no. 406, 1-14 (2022); ISSN:1221-1451; (IF = 2.085 za 2021. godinu; 48/86; oblast: Physics, Multidisciplinary)
28. Milena P. Živković, **Tatjana B. Miladinović**, Aleksandar M. Miladinović, Una J. Molnar, and Dragana Ž. Krstić, Absorbed dose distribution in human eye simulated by FOTELP-VOX code and verified by volumetric modulated arc therapy treatment plan, *Nuclear Technology & Radiation Protection*, 37, No. 1, 78-83, (2022); ISSN: 1451-3994; DOI: doi.org/10.2298/NTRP2201078Z; (IF = 0.945 za 2021. godinu; 29/34; oblast: Physics, Nuclear Science & Technology)
29. **T. B. Miladinović**, N. Danilović, M. Z. Jeremić, Non-exponential tunneling ionization probability distribution as a function of different laser beam profiles, *Revista Mexicana de Fisica*, 68, 040401 1–12 (2022); ISSN: 0035-001X; DOI: <https://doi.org/10.31349/RevMexFis.68.040401>; (IF = 1.702 za 2021. godinu; 55/86; oblast: Physics, Multidisciplinary)
30. N. Danilović, A. Janicijević, and **T. B. Miladinović**, Air Cooler for Crystal Growth in a Laboratory Tube Furnace, *Crystallography Reports*, 2022, 67, No. 7, 1298–1302 (2022); ISSN 1063-7745; DOI: 10.1134/S1063774522070021 (IF = 0.667 za 2021. godinu; 24/26; oblast: Crystallography)
31. Dragana Krstić, Dragoslav Nikezić, Marija Jeremić, Edin Dolicanin, **Tatjana B. Miladinović**, Milena Živković, Comparison between MCNP and planning system in brachytherapy of cervical cancer, *Applied Radiation and Isotopes*, 110614 (2022); ISSN: 0969-8043 <https://doi.org/10.1016/j.apradiso.2022.110614> (IF = 1.787 za 2021. godinu; 118/136; oblast:

Radiology, Nuclear Medicine & Medical Imaging) (In Press, Available online)

Proceedings of international scientific conferences

Sum

8

1. V.M. Ristić, T.B. Miladinović and M.M. Radulović, Some Aspects of Including Non-Zero Initial Momenta Into Ionization of Atoms by Strong Low-Frequency Laser Fields, *24th Summer School and International Symposium on the Physics of Ionized Gases*, vol. 84, 231-235 (2008); ISSN 0373-3742
2. V.M. Ristić, T.B. Miladinović and J.M. Stevanović, Ionization Transition Rate for Circularly Polarized fields, for Different Z, Including Non-Zero Initial Momentum, *25th Summer School and International Symposium on the Physics of Ionized Gases*, vol. 89, 45-48 (2010); ISSN 0373-3742
3. Overview of phantoms in dosimetry and radiation protection, Milena P. Živković, Dragoslav Nikezić, Tatjana B. Miladinović, Dragana Ž. Krstić, 1st International Conference on Chemo and BioInformatics, ICCBIKG 2021, Kragujevac, Serbia, October 26-27, 2021 Book of Proceedings, p. 141-144
4. Radioactivity assessment of natural radionuclides and ¹³⁷Cs in commonly consumed foods, Milena P. Živković, Dragoslav Nikezić, Tatjana B. Miladinović, Jelena M. Stajić, Dragana Ž. Krstić, 1st International Conference on Chemo and BioInformatics, ICCBIKG 2021, Kragujevac, Serbia, October 26-27, 2021 Book of Proceedings, p. 145-148
5. Hybrid IMRT radiation technique comparison with 3D-CRT for left-sided whole breast cancer, Nina Pavlović, Tatjana B. Miladinović, Darko Stojanović, Aleksandar Miladinović, Marija Z. Jeremić, 1st International Conference on Chemo and BioInformatics, ICCBIKG 2021, Kragujevac, Serbia, October 26-27, 2021 Book of Proceedings, p. 153-156
6. Dosimetric comparison of VMAT and 3D conformal radiotherapy in preoperative rectal cancer, Tatjana B. Miladinović, Aleksandar Miladinović, Nina Pavlović, Dragoslav Nikezić, Dragana Krstić, Milena Živković, 1st International Conference on Chemo and BioInformatics, ICCBIKG 2021, Kragujevac, Serbia, October 26-27, 2021 Book of Proceedings, p. 181-184
7. Comparison of FOTELP and MCNP with voxelised geometry and its application in radiotherapy, Milena Zivkovic, Tatjana B. Miladinovic, Dragana Krstic, RAP Conference proceedings, Vol. 6, pp. 97–100, 2021 ISSN 2737-9973 (ONLINE) | DOI: 10.37392/RAPPROC.2021.20
8. Milena Zivkovic, Dragana Krstic, Tatjana B. Miladinovic, Filip Grbovic, Snezana Brankovic, Levels of radioactivity of natural radionuclides and ¹³⁷Cs on characteristic landfills and natural habitats in Serbia, 1th International Conference , Conference on advances in science and technology , COAST 2022 May 26-29, 2022 Herceg Novi, Montenegro, p.340.

Proceedings of national scientific conferences

Sum

1

1. N. Danilović, A. Janićijević, T. B. Miladinović, Crystallization shelf, 27th Conference of the Serbian Crystallographic Society, Kragujevac, Serbia, September 16–17th, 2021 Book of Abstracts, p. 59

Monographs of national importance

Sum

Scientific papers in national journals	Sum
<ol style="list-style-type: none"> 1. Ivan D. Petrovic, Violeta M. Petrović, Tatjana B. Miladinović, Theoretical and expert system approach to photoionization theories, <i>Kragujevac J. Sci.</i>, (2016), vol. 38, str. 53-62; 2. Tatjana B. Miladinović, Nebojša S. Danilović, Comparison of transition rates with the LG (0,1)* spiral-phase mode field distribution in the frame of three ionization theories, <i>Bulletin of Natural Sciences Research</i>, Vol. 11, No. 2, pp.29-34, 2021. DOI: https://doi.org/10.5937/bnsr11-28954 	
Technical solutions	Sum
Patents	Sum

CITATION OF SCIENTIFIC PAPERS

Total heterocitations: 10 (Source: Scopus database)

BRIEF DESCRIPTION OF RESEARCH IN THE PREVIOUS PERIOD

Dr Tatjana Miladinović conducts theoretical and computational research in atomic, molecular and optical physics. Of particular interest is also the exploration in the area of medical physics.

Atomic, molecular and optical physics: Interaction of quantum systems with a laser may be of various natures (e.g., ionization, spontaneous emission, rescattering, fluorescence, collisions, etc). The interaction of quantum and classical systems is one of the most interesting problems in modern science. These classical-quantum systems in which both quantum and classical degrees of freedom interact are the subjects of research. In previous research transition rates during tunnelling and multiphoton ionization of alkali and noble atoms are calculated. The analysis involved intense laser fields and different laser beam profiles. The impact of additional effects as the initial momentum of the ejected electron, ponderomotive potential, Stark shift and Coulomb potential were also taken into account.

Mhedral physics: Radiotherapy (RT) used in early-stage cancer reduces the recurrence risk and improves overall survival. Our primary goal was to describe the doses received as well as the clinical events likely to result from this radiotherapy. Therefore, using the radiotherapy planning system, ECLIPSE-Version 15.6 (Varian), we analyzed and compared different radiation techniques (VMAT, FIF 3D-CRT, hIMRT) for several types of tumors and for a larger number of patients. We calculated the dose distribution, compared techniques and their ability to the delivery of the prescribed dose to a designated the planned target volume (PTV) and determined which technique provides better

organ protection from risk (OAR). We also analyzed the PTV parameters, the homogeneity index (HI) and the conformity index (CI), as well as the duration of the treatment. We have been researching drugs that have a potential radioprotective and/or mitigating effect on damage caused by exposure to radiation, either accidentally or for therapeutic purposes. An overview of compounds, radioprotectors, mitigators or other therapeutic agents, which exhibit a radioprotective and/or mitigating effect after the application of diagnostic or therapeutic ionizing radiation, is given.

We also worked on modifications to the general-purpose FOTELP code, combining Monte Carlo techniques to simulate the transport of particles from an external source through internal organs, resulting in a 3-D distribution of absorbed dose. We have presented a comparison of the results obtained with the FOTELP software and volumetric modulated arc therapy (VMAT). It should be emphasized that the simulations and radiotherapy plan was made so that a therapeutic dose of radiation is delivered to the diseased tissue (tumor), so as to avoid damage to the surrounding healthy tissue.

BRIEF DESCRIPTION OF PLANNED RESEARCH IN THE NEXT PERIOD

In the following period, we plan to deal with theoretical research on the interference of electrons ionized from argon atoms by an LG(0,1)* laser beam that is linearly polarized and spirally amplitude modulated. We will analyze the interference structures resulting from the interference of trajectories starting within the same optical cycle (interference within a cycle) and trajectories starting from different optical cycles (interference between cycles). We will also continue the application of FOTELP VOX software, in order to use simulations to determine the absorbed dose in the humerus of breast cancer patients who underwent postoperative radiotherapy. The comparison will be made with the radiotherapy plan obtained with the 3D-CRT technique.

We will investigate whether the application of HBO (hyperbaric oxygen) therapy has a potential radiobiological efficacy immediately before radiotherapy, during or after treatment, when symptoms of late radiation toxicity appear. Although modern radiotherapy techniques have led to a reduction in the intensity of side effects, it can be concluded that their frequency has not significantly decreased. HBO has so far given significant results in terms of reducing the intensity of late radiation toxicity when the applied therapeutic regimens did not give satisfactory results. Research in the field of medical physics and the application of microdosimetry models with the aim of studying the biological effects of radiation at the cellular level is planned. The aim is to determine the rate of elimination of yttrium radioisotopes from blood and urine after the application of PRRT therapy. We also want to use Monte Carlo simulations to calculate the doses received by the uterus during brachytherapy. We will compare the calculated doses with the doses obtained using the planning system of the University Clinical Center in Kragujevac. We will also calculate the doses received by the organs from the risk. Calculations will be made on a sample of a larger number of patients.