



Dr.sc. Ivančica Bogdanović Radović

Tenured Senior Scientist

Laboratory for Ion Beam Interactions, Ruđer Bošković Institute

WORKING EXPERIENCE

- March 2019 – today – tenured senior scientist in the Laboratory for Ion Beam Interactions, Ruđer Bošković Institute, Zagreb
- February 2014 – March 2019 – senior scientist in the Laboratory for Ion Beam Interactions, Ruđer Bošković Institute, Zagreb
- November 2006 – February 2014 – senior scientific associate in the Laboratory for Ion Beam Interactions, Ruđer Bošković Institute, Zagreb
- July 2002 – November 2006 – scientific associate in the Laboratory for Ion Beam Interactions, Ruđer Bošković Institute, Zagreb
- February 1999 - February 2000- Lise Meitner postdoctoral fellow, Institut für Experimentalphysik Johannes Kepler Universität, Linz, Austria
- January 1998 – July 2002 – senior assistant in the Laboratory for Ion Beam Interactions, Ruđer Bošković Institute, Zagreb
- April 1991 – January 1998 – younger scientific assistant in the Laboratory for Ion Beam Interactions, Ruđer Bošković Institute, Zagreb

Research area:

- 1991-1993 - work on XRF (x-ray fluorescence) method, quantitative elemental analysis of different samples
- 1993-1995:
 - development and application of ion beam analysis methods: STIM (Scanning Transmission Ion Microscopy), PIXE (Particle induced x-ray emission) and RBS (Rutherford Backscattering) on the proton microprobe
 - study of properties of new types of detectors for detecting particles and g-rays (Si, CdTe, CVD diamonds, natural diamonds) using IBIC (Ion Beam Induced Charge) at the ion microprobe
 - analysis of experimental data at the computer, writing of own computer programs for data analysis and presentation
- 1995-1997 –K and L ionization of atoms by protons and heavier ions, study of multiple ionization processes during ionization of atoms by heavier ions
- from 1997 – today:

- development and application of several ion beam analysis methods: non-Rutherford elastic scattering, Nuclear Reaction Analysis (NRA) and Elastic Recoil Detection (ERDA) for analysis and characterization of different samples
- development of IEE (Ion Induced Electron Emission) ERDA spectrometer on ion microprobe for 3D hydrogen mapping in thin films
- development of new scattering chamber for the analysis and characterization of thin films and thin multiplayer samples using Time-of-Flight (TOF)-ERDA/TOF-RBS
- measurements of differential cross sections for elastic scattering and recoil for those ion-atom combinations where there are no experimental data available
- development of a coincidence scattering techniques for analysis and 3D profiling of light elements in thin transmission targets using broad and microbeam
- development of a new scattering chamber for air pollution monitoring using PIXE&RBS&PIGE techniques
- development of Secondary Ion Mass Spectrometry using MeV ions on the heavy ion microprobe with applications in cultural heritage, forensics and biology
- development of the capillary microprobe for MeV SIMS
- analysis of plasma facing components (PFC) reference coatings
- post mortem analysis of PFC from linear and toroidal devices

EDUCATION

- 1984-1991, Faculty of Natural Sciences and Mathematics, University of Zagreb
Subject of diploma work: “Monte Carlo simulation of elastic and inelastic scattering in the x-ray spectroscopy”, BSc in physics
- 1991-1994, Faculty of Natural Sciences and Mathematics, University of Zagreb
Subject: “Quantitative analysis by proton microprobe”, MSc in physics
- 1994-1997, Faculty of Natural Sciences and Mathematics, University of Zagreb
Subject of PhD work: “Ionization of atomic L-shell by heavy ions”, PhD in physics

FELLOWSHIPS

- 1992: one month fellowship at the University of Oxford, Department of Nuclear Physics, Oxford, UK
- 1994: one month fellowship of Republic of Austria at the Atominstitut der Österreichischen Universitäten, Vienna, Austria
- October 1996 - June 1997: Technische Universität München, Garching, Germany
- February 1999 – February 2000: Lise Meitner postdoctoral fellowship at the Institut für Experimentalphysik Johannes Kepler Universität, Linz, Austria

PARTICIPATIONS AT THE CONFERENCES AND SCIENTIFIC VISITS

- Participation on more than 40 workshops and international conferences.
- Invited talks:
 - Workshop on X-Ray Emission Techniques for Forensic Applications, May 28 – June 1, 2007, **invited talk**
 - Workshop on Small-Scale Accelerator Facilities, Aghios Nikolaos, Crete, Greece, Sept. 7-8, 2007, **invited talk**
 - 11th International Conference on Nuclear Microprobe Technology and Applications, Debrecen, July 2008, Hungary, **invited talk**
 - NIS Colloquium, Materials analysis and Modification by Ion Beams, University of Torino, Italy, **invited talk**

- 16th International Scientific Meeting on Vacuum science and technique, Bled, 4.-5. Jun 2009, **invited talk**
- 13th Joint Vacuum Conference, 20.-24. June 2010, Štrbske Pleso, Slovak Republic, **invited talk**
- 10th European Conference on Accelerators in Applied Research and Technology, ECAART 2010, 13.-17. September 2010, Greece, Athens, **invited talk**
- ASON-2, 2nd Adriatic School of Nanoscience, 2.-7. September 2012, Dubrovnik, Croatia, **invited talk**
- NSD 2012 – “Nuklearna i subatomska fizika – nova dostignuća hrvatskih znanstvenika”, Zagreb, 13.12.2012 Zagreb, **invited talk**
- 23rd Conference on Application of Accelerators in Research and Industry, May 25-30, 2014, San Antonio, USA, **invited talk**
- 22nd International Conference on Ion Surface Interaction, August 20-24, 2015 Moscow, Russia, **invited talk**
- 9th Scientific Meeting of Croatian Physics Society, Umag, Croatia 5-7 October 2015, **invited talk**
- CERIC Satellite Event at the NESY Winter-School,” 6th March 2017 in Altaussee, Austria, **invited talk**
- COST Conference, Uncovering forensic imaging capabilities, 6.-9.11.2017. Krakow, Poland, **invited talk**
- 10. susret Sekcije restauratora i preparatora HMD-a, **invited talk**
- Summer School of Science, Požega, Croatia 10.8. **invited talk**
- CAARI 2018, Grapevine, 12 – 17 August 2018, USA, **invited talk**
- Training Workshop on the Applications of Accelerator-Based and Complementary Techniques for Forensic Science, 20-24 June 2022, Lecce, Italy, **invited talk**
- ICNMTA 2022 – 15th International Conference on Nuclear Microprobe Technology and Applications, 11-16 September 2022, Ljubljana, Slovenia **invited talk**
- 15th International Symposium on Fusion Nuclear Technology, Las Palmas de Gran Canaria, Spain, 10-15 September 2023, **invited talk**
- Science at CERIC 2024, Lecce, 16-17 October 2024, **invited talk**
- scientific visit to University of Torino, Italy, February 2003
- scientific visit to Istituto Nazionale di Fisica Nucleare; Sezione di Firenze; Dipartimento di Fisica, Firenze, April 21 – May, 5, 2011

SCIENTIFIC PAPERS

Author or co-author at 187 scientific papers published in international scientific journals cited by WoSCC. Total number of citations of those published papers is 2327 (ISI Web of science April 2025), h-index=22.

SCIENTIFIC PROJECTS

- 2024 – 2027 – Croatian science foundation project: Sequential molecular and elemental imaging using MeV SIMS and other IBA techniques, project leader
- 2024 – 2028 Horizon Europe project RIANA – team leader on RBI
- 2021- today EUROfusion project, WP PWIE, support IBA analysis, task holder

- 2019 – 2022 Horizon2020 INFRARIA project RADIATE – project leader for RBI
- 2017 – 2020 – Croatian science foundation (HrZZ) project: Development of the capillary microprobe for MeV SIMS with application on analysis of biological samples, project leader
- 2017 – 2021 - COST Action CA16101 MULTI-modal imaging of FOREnsic SciEnce Evidence (MULTI-FORESEE)- tools for Forensic Science, Management Committee member from Croatia
- 2017 – 2021 – IAEA CRP project Enhancing Nuclear Analytical Techniques to Meet the Needs of Forensic Sciences (CRP No: F11021), project leader
- 2014 – 2020 – EUROfusion project, WP PFC SP5, support IBA analysis, task holder
- 2013 - 2015 – UKF Fund “Unity through Knowledge” project: “ Study of modern paint materials and their stability using MeV SIMS and other analytical techniques” project in collaboration with Academy of Fine Arts, Vienna (dr. Dubravka Jembrih-Simbürger)
- 2009-2011 - IAEA TC project CRO8008: “Upgrading nuclear analysis techniques for air pollution monitoring”, project leader
- 2011- 2013 - IAEA CRP project „ Assessment of Nuclear Data Needs for Particle Induced Gamma Ray Emission (PIGE)“, project leader
- 2011- 2012 - Bilateral project with Serbia: „Synthesis and modification of titanium based nanocomposite materials by ion and laser beam, project leader
- 2009-2013 - FP7 project „Support of Public and Industrial Research Using Ion Beam Technology – SPIRIT“, associate on the project, local TNA contact person
- 2006-2010 - IAEA CRP project: „Measurements of differential cross sections for elastic scattering of ^1H and ^4He ions from selected light elements“, project leader
- 2004-2006 - bilateral project between Croatia and Slovenia: “Depth profiling of hydrogen and other light elements in thin films using ERDA spectroscopy”, project leader
- 2005-2006 - principal investigator of information technology project of Croatian Ministry of Science: “Automatization of PIXE/RBS measurements“
- 2002 -2005 - principal investigator on IAEA CRP project: „IBA methods for analysis of light elements in solar cells, SiC films and gel polymer batteries using ion microprobe“
- 2003 - 2005 - associate on two HITRA projects and FP6 EU project: FW6-LPAMS - INCO-CT-2004-509178

OTHER SCIENTIFIC ACTIVITIES

- since 2024 – chair of the Uk National Ion Beam Centre (UKNIBC) Steering committee
- since 2023 – editor for journal Nuclear Instruments and Methods B (Elsevier)
- since 2021 – member of the Scientific Advisory Committee for the Centro de Micro-Analisis de Materiales (CMAM) at the University of Madrid, Spain
- since 2019 - chair of the Ruđer Bošković Institute Scientific Council
- since 2019 – chair of the International Advisory Committee of Ion Beam Analysis Conference
- 2018 –2023 member of the Nuclear Physics Division board of the European Physics Society
- since 2017 – member of the User Selection Panel of Helmholtz Zentrum Dresden Rosendorf (HZDR) Ion Beam Center
- 2017 - 2022 - member of the Advisory Editorial Board of Nuclear Instruments and Methods B
- 2016 – 2019 - chair of the Ruđer Bošković Institute Physics Scientific Council
- since 2016 – member of the Ruđer Bošković Institute Scientific Council
- 2018 – 2019 - vice chair of the Ruđer Bošković Scientific Council
- 2020 - Chair Local Organizing Committee for virtual SOFT2020

- 2022- Chair Local Organizing Committee for hybrid SOFT2022
- chair of the 22nd International Conference on Ion Beam Analysis, 14-19 June 2015, Opatija, Croatia
- 2019 - opponent at the PhD defense of Yushan Zhou, KTH, Stockholm, Sweden
- 2016 - opponent at the PhD defense of Linus Ross, Lund University, Sweden
- 2013 - opponent at the PhD defense of Mikko Laitinen, University of Jyväskylä, Finland
- since 2015, member of the Ion Beam Analysis International Advisory Committee
- guest editor of the IBA 2015 Conference proceedings that is published as a special issue of Nuclear Instruments and Methods B
- 2016 - supervisor of chemistry student Mason Malloy (ERASMUS+ project)
- 2018 - supervisor of chemistry student Katherine Moore (ERASMUS+ project)
- supervising 4 PhD students (Masedi Masekane, PhD obtained in 2024; Marko Brajković, PhD obtained in 2022; Ivana Zamboni, PhD obtained in 2015; Zdravko Siketić, PhD obtained in 2010)
- supervising Dora Plavčić during her diploma work (MSc obtained in 2018)
- supervising Marko Škrabić during his diploma work (BSc obtained in 2011)
- participation in organization of two international conferences “9th International Conference on Nuclear Microprobe Technology and Applications” (in 2004) and “2th International Symposium on Utilization of Accelerators”(in 2005)
- guest editor of Conference proceedings “9th International Conference on Nuclear Microprobe Technology and Applications” that was published in Nuclear Instruments and Methods B
- referee for Nuclear Instruments and Methods B, Fizika B, X-Ray Spectrometry, AIP Conference Proceedings, Journal of Applied Physics, Nuclear Technology and Radiation Protection, Surface and Interface Analysis, Vacuum, Applied Surface Science, Forensic Chemistry, Analytical Chemistry, Atmospheric Pollution Research, Journal of Forensic Science, Surface and Coatings, Aerosol and Air Quality Research, Review of Scientific Instruments
- external reviewer for South Africa’s National Research Foundation
- external reviewer for Czech Scientific Foundation
- 2005-2009 teaching at the Faculty of Natural Sciences and Mathematics, University of Zagreb, 1st year of physics study, topic: Numerical methods
- 2006- today teaching at the postgraduate study Molecular biosciences organized jointly by University of Osijek, University of Dubrovnik and Ruđer Bošković Institute course: Nuclear methods for the analysis of biological materials
- session chair at the CAARI 2006 Conference for the topic: “Ion Beam Analysis of hydrogen detection and profiling”.
- session chair at the CAARI 2008 Conference, Ft. Worth, USA for the topic: “Hydrogen profiling”.
- session co-chair at the CAARI 2014 Conference, San Antonio, USA for the topic: “ New challenges in SIMS”
- scientific secretary and member of the Organizing committee of the 6th Scientific Meeting of the Croatian Physics Society, Primošten 6-10 October 2009
- (2008 - 2010) member of the Managing board of the Croatian Physics Society
- member of the Organizing committee of the 41st International Physics Olimpiad 17-25 July, 2010
- member of the Organizing committee of the 7th Scientific Meeting of the Croatian Physics Society, Primošten 13-16 October 2011