Curriculum Vitae

Personal information

First name(s) / Surname(s)	Hiqmet Kamberaj
Address(es)	International Balkan University, Tashko Karadza 11A, 1000, Skopje, R. of Macedonia
Telephone(s)	+389(0)23214831 (ext. 123)
Fax(es)	+389(0)23214832
E-mail	hkamberaj@ibu.edu.mk or h.kamberaj@gmail.com
Web address	hkamberajibu.wikidot.com
Nationality	Albanian, Macedonian
Date of birth	07/09/1972
Education	**1.** Ph.D. in Physics, 2001-2005, Manchester Metropolitan University, Manchester, United Kingdom. **2.** M.Sc. in Physics, 1997-2000, University of Siegen, Siegen, Germany. **3.** B.Sc. (5 years study program), 1991-1996, University of Tirana, Tirana, Albania.
Languages **Native** **Foreign languages (Reading/ writing/ speaking)**	**1.** Albanian **2.** English, German
h-Index **Google Scholar** **ResearchGate** **Mendeley**	9 to 10 https://scholar.google.com/citations?user=5I1XAAcAAAAJ&hl=en https://www.researchgate.net/profile/Hiqmet_Kamberaj https://www.mendeley.com/profiles/hiqmet-kamberaj2/?utm_source=mm_Mandrill

ACADEMIC EXPERIENCE	
Visiting scholar	**1.** 2014, Visiting Scholar Researcher, University of South Florida, USA
Postdoctoral positions	**2.** 2008-2009, Postdoctoral Research Associate, Center for Drug Design, University of Minnesota, MN, USA. **3.** 2006-2008, Postdoctoral Research Associate. Center for Biological Physics, Arizona State University, Department of Chemistry & Biochemistry, Tempe, AZ, USA. **4.** 2005-2006, Postdoctoral Fellow, University of Alberta, National Institute of Nanotechnology, Edmonton, Alberta, Canada. **5.** 2004-2005, Postdoctoral Research Associate, Manchester Metropolitan University, Manchester, United Kingdom.
Graduate student positions	**6.** 2000-2001, Postgraduate Student, Max-Planck Institute of Biophysics, Frankfurt am Main, Germany.
Teaching positions	**7.** 2014-Present, Associate Professor, International Balkan University, Skopje, Republic of Macedonia. **8.** 2014-Present, Adjunct Associate Professor, State University of Tetovo, Tetovo, Republic of Macedonia. **9.** 2009-2014, Assistant Professor, International Balkan University, Skopje, Republic of Macedonia. **10.** 2011-2014, Adjunct Assistant Professor, State University of Tetovo, Tetovo, Republic of Macedonia. **11.** 2004-2005, Assistant Lecturer, Manchester Metropolitan University, Manchester, United Kingdom. **12.** 2003-2004, Teaching Assistant, Manchester Metropolitan University, Manchester, United Kingdom. **13.** 2001-2003, Teaching Assistant, University of Coventry, Coventry, United Kingdom. **14.** 1996-1997, Assistant Lecturer, University of Tirana, Tirana, Albania.
Teaching Assignments	
Courses at IBU	**<u>Undergraduate Level:</u>** • Introduction to Programming • Computer Architecture • Discrete Computational Structure • Discrete Mathematics • Algorithms • Systems Modeling • Introduction to Information Technology • Introduction to Probability & Statistics • Physics I • Physics II • Electromagnetic Theory

Other Universities (State University of Tetovo)	**Graduate Level:** • Information Theory • Theory of Probability **Undergraduate Level:** • Statistical Physics • Classical Mechanics • Electrodynamics • Medical Physics **Graduate Level:** • Theoretical Methods in Physics
Research interests and fields	• Theoretical and Computational Physics/Chemistry • Soft matter, Biophysics and Nanophysics • Protein and DNA dynamics • Bio-inspired optimization • Machine Learning approaches • Bioinformatics • Numerical integrators for molecular dynamics • Monte Carlo and molecular dynamics techniques • Free energy calculations • Information flow in biomolecular systems • Coarse-grained models of proteins and DNA • Swarm particle intelligence optimization • GPU-accelerated computing • Quantum simulations of molecular systems
Administrative Working Experience	• **Acting Dean of Faculty of Engineering** (2017-Present): International Balkan University • **Rector's Advisor for Research and Projects** (2015-2017): International Balkan University • **President of Student Evaluation Committee** (2012-Present): International Balkan University • **Member of the Senate** (2009-Present): International Balkan University • **Member of the Faculty Council** (2009-Present): International Balkan University
Professional Memberships	• 2018-Present Materials Research Society of Macedonia • 2014-Present Research Institute of Science and Technology (Albania) • 2017-Present Subscriber Member of Nature Methods Techniques for Life Scientists and Chemists (USA) • 2011-2016 American Chemical Society (USA) • 2006-2009 American Biophysics Society (USA) • 2001-2005 British Liquid Crystal Society (UK)

Professional Experience	• **Editor-in-Chief** of American Journal of Applied Sciences, Engineering and Technology (2014-2015). • **Editorial Board Member** of: International Journal of Dataset Papers in Physics (2012-2017); Turkish Academic Journal of Intelligent Systems; European Journal of Biophysics. • **Peer Reviewer** of: International Journal of Computational and Theoretical Chemistry; International Journal of Electrical Power & Energy Systems; Science Journal of Applied Mathematics and Statistics; Journal of Chemical Information and Modeling; BMC Bioinformatics; Entropy.
Awards	**1.** 2016: Certificate of Excellence (Motivation: For his outstanding performance in academic research during the academic year 2015/2016), International Balkan University. **2.** First Prize in Bioinformatics: Building Bridges Symposium, Minneapolis, MN, USA (17 April 2009). Work presented as a poster – *Computational Alanine scanning of ß-lactamase Inhibitor Protein and TEM-1 ß-lactamase Complex.* **3.** Summer 1996: Dean's list of outstanding students, University of Tirana, Tirana, Albania. **4.** April 1986: Second prize of the mathematical Olympiad, Vlora, Albania.
PUBLICATIONS	
Original scientific article (Including electronic journals) (2014-Present)	**1.** Dh. Nebiu and H. Kamberaj, (to be submitted 2018), Symbolic Information Flow Measurement (SIFM): A Software for Measurement of Information Flow Using Symbolic Analysis. **2.** H. Kamberaj, (to be submitted in October 2018 as Special Issue), Prediction of Solvation Free Energy Using a Bootstrapping Swarm Artificial Neural Network Method: A Machine Learning Approach, *Journal of Chemical Information and Modelling*. **3.** H. Kamberaj, (2018) Faster Protein Folding Using Enhanced Conformational Sampling of Molecular Dynamics Simulation, *Journal of Molecular Graphics and Modelling*, 81, 32-49. **4.** R. Izairi and H. Kamberaj, (2017) Comparison Study of Polar and Non-polar Contributions to Solvation Free Energy, *Journal of Chemical Information and Modeling*, 57(10), 2539-2553. **5.** H. Kamberaj, (2017) Sampling Convergence of Collective Motions in Proteins, *Journal of Applied Physical Science International*, 8(3), 101-112. **6.** H. Kamberaj, (2016) Replica Exchange Using q-Gaussian Swarm Quantum Particle Intelligence Method, *Engineering and Applied Sciences*, 1(2), 20-25. **7.** H. Kamberaj, (2015) Conformational Sampling Enhancement of Replica Exchange Molecular Dynamics Simulations Using Swarm Particle Intelligence, *The Journal of Chemical Physics*, 143, 124105. **8.** H. Kamberaj, (2014) Q-Gaussian Swarm Quantum Particle Intelligence on Predicting Global Minimum of Potential Energy Function, *Applied Mathematics and Computation*, 229, 94-106.
(2009-2013)	**9.** Spiriti, J., Kamberaj, H., de Graff, A., Thorpe, M.P., and van der Vaart, A., (2012) DNA

(2001-2008)	bending through large angles is aided by ionic screening, *Journal of Chemical Theory and Computation*, 8 (6), 2145–2156. **10.** Spiriti, J., Kamberaj, H., and van der Vaart, A., (2012) Development and application of enhanced sampling techniques to simulate the long-time scale dynamics of biomolecular systems, *International Journal of Quantum Chemistry*, 112, 33-43. **11.** Kamberaj, H. (2011) A Theoretical Model for the Collective Motion of Proteins by Means of Principal Component Analysis. *Central European Journal of Phys*ics, 9(1), 96-109. **12.** Kamberaj, H. and van der Vaart, A. (2009) Extracting the causality of correlated motions from molecular dynamics simulations. *Biophysical Journal*, 97(6), 1747-1755. **13.** Kamberaj, H. and van der Vaart, A. (2009) An optimized replica exchange method for molecular dynamics simulations. *Journal of Chemical Physics*, 130(7), 074904-6. **14.** Kamberaj, H. and van der Vaart, A. (2009) Correlated Motions and Interactions at the Onset of the DNA-Induced Partial Unfolding of Ets-1. *Biophysical Journal*, 96, 1307-1317. **15.** Kamberaj, H. and van der Vaart, A. (2007) Multiple scaling replica exchange method for the efficient sampling of biomolecular systems. *The Journal of Chemical Physics*, 127(23), 234102-7. **16.** Kamberaj, H., Low, R.J., and Neal, M.P. (2006) Correlation between molecular chirality and helical twisting power. A computer simulation study. *Molecular Phys*ics, 104(3), 335-357. **17.** Neal, M.P., Kamberaj, H., and Low, R.J. (2005) Some calculations of molecular chirality. *Molecular Crystal Liquid Crystal*, 439, 1937-1943. **18.** Kamberaj, H., Low, R.J., and Neal, M.P. (2005) Molecular structure and helical twisting power, *Ferroelectrics*, 315, 183-196. **19.** Kamberaj, H., Low, R.J., and Neal, M.P. (2005) Symplectic and time reversible integrators for molecular dynamics simulations of rigid molecules. *The Journal Chemical Physics*, 122(22), 224114-30. **20.** Kamberaj, H., Osipov, M.A., Low, R.J., and Neal, M.P. (2004) Helical twisting power and chirality indices. *Molecular Physics*, 102(5), 431-446. **21.** Kamberaj, H., Low, R.J., and Neal, M.P. (2003) Symplectic and time reversible integrators for rigid bodies. *System Science*, 29(2), 31-45. **22.** Kamberaj, H., and Helms, V. (2001) Monte Carlo simulation of biomolecular systems with BIOMCSIM, *Computer Physics Communications*, 141 (3), 375-402.
Published scientific conference contribution **Full paper**	**1.** Kamberaj, H., Low, R.J., and Neal, M.P. (2003) *Symplectic and time reversible integrators for rigid bodies*, 16th Conference on Systems Engineering, ICSE2003, editors: K.J. Burnham and O.C.L. Haas, Coventry University, Coventry, UK, Vol. 1, 320-325, September 9-11. **2.** T. Conka-Nurdan, K. Nurdan, F. Constantinescu, B. Freisleben, H. Kamberaj, N.A. Pavel, I. Rauhut, K. Reichmann, A.H. Walenta (2001) *Influence of the Detector Parameters on a Compton Camera*, IEEE, 22-26.

Published scientific conference contribution abstract **Abstract**	
(2014-Present)	**1.** H. Kamberaj, Analyzing Causality of Molecular Interactions: A Case Study of Molecular Dynamics Simulation of Protein-RNA System, Applied Physics 2018, 02-03 July, Vienna, Austria, 2018. **2.** Izairi-Bexheti, R. and Kamberaj, H., On the calculation protein-protein binding free energy using molecular dynamics simulations, 1st International Conference of Natural Sciences and Mathematics, Tetovo, R. of Macedonia, June 16-17, 2017. **3.** Kamberaj, H., Perspectives on Molecular Dynamics Simulations & Free Energy Calculations for Biomolecular Systems, International Conference on Applied Sciences, Engineering and Mathematics, Ohrid, R. of Macedonia, May 5-7, 2017. **4.** Izairi, R. and Kamberaj, H., *Molecular Dynamics Simulation Study of Protein-Protein Interactions*, ALBNANO2016 NANOTECHNOLOGY AND BIOSENSORS, May 29-31, 2016, Tirana, Albania. **5.** Kamberaj, H., 2nd International Conference on Pure & Applied Science, June 1-5 2016, Istanbul Turkey, *Enhanced Transition Path Sampling Using Swarm Particle Intelligence in Replica Exchange Molecular Dynamics*. **6.** Izairi, R. and Kamberaj, H., The 10th Conference of the Society of Physicists of Macedonia, Skopje, Macedonia, September 25-28, 2014, *Calculations of the Electronic Properties of Molecules using Computational Quantum Mechanics Models*. **7.** Mutlu, O., Kamberaj, H., 2nd International Bau-Drug Design Symposium, *Novel methods and emerging targets in drug discovery & patented drug development*, Bahcesehir University, Istanbul, Turkey, 17-19 April 2014, *Structural Modelling, Molecular Docking and Molecular Dynamics Simulation of Trypanothione Synthase*.
(2009-2013)	**1.** Kamberaj, H., International Conference on Applied Analysis and Mathematical Modeling, Istanbul, Turkey, 2-5 June 2013, *Symbolic Mutual Information for Estimation of Nonlinear Higher Order Correlated Fluctuations*. **2.** Kamberaj, H., International Meeting on Atomic and Molecular Physics and Chemistry, Scuola Normale Superiore Pisa, Italy (12-14 September 2012), *Dynamics and static dielectric response of water in anionic hydration shells using ab-initio molecular dynamics simulation*. **3.** Kamberaj, H., 6th International Annual Meeting of Alb-Science Institute, Prishtina, Kosova (1-4 September 2011), *Modeling of protein-protein interactions: Calculation of the binding free energy and computational alanine scanning*. **4.** Kamberaj, H., 8th European Biophysics Congress, Budapest, Hungary (23-27 August 2011), *Elucidating the modular structure of the protein G C2 fragment and human IgG Fc domain binding site using computer simulations*.

(2002-2008)	**1.** Kamberaj, H. and van der Vaart, A. (2008) Biophysics Society 52-th Annual Meeting & 16-th IUPAB International Biophysics Congress, Long Beach, CA, USA. Work presented as a poster - *Unfolding upon binding: Elucidation of the complex binding dynamics of the Ets-1 transcription factor by computer simulation*, February 2-6. **2.** Neal, M.P., Kamberaj, H. and Low, R.J. (2006) 21st International Liquid Crystal Liquid Crystals Conference 2006, Keystone, Colorado, USA. Work presented as poster – *On predicting ferroelectric liquid crystal reduced spontaneous polarization or polarization power*, July 2-7. **3.** Kamberaj, H., Low, R.J., and Neal, M.P. (2005) 6th International Conference on Liquid Matter at Utrecht University, Utrecht, The Netherlands. Work presented as a poster – *Calculation of molecular chirality and helical twisting power,* July 1-6. **4.** Kamberaj, H., Low, R.J., and Neal, M.P. (2005) British Liquid Crystal Society Annual Meeting at Exeter University, Exeter, UK. Work presented as a talk - *Calculations of the Molecular Chirality*, March 22-26. **5.** Kamberaj, H., Low, R.J., and Neal, M.P. (2004) British Liquid Crystal Society Annual Meeting at Manchester Metropolitan University, Manchester, UK. Work presented as a talk and in poster format - *Applications of Calculations of the Molecular Chirality and Helical Twisting Power*, April 5-7. **6.** Kamberaj, H., Low, R.J. and Neal, M.P. (2003) 9th International Conference on Ferroelectric Liquid Crystals at Trinity College, Dublin, Ireland. Work presented in poster format – *Molecular structure and helical twisting power,* August 24-29. **7.** Kamberaj, H., Low, R.J., and Neal, M.P. (2003) British Liquid Crystal Society Annual Meeting at Cambridge University, Cambridge, UK. Work presented in poster format, April 7-9. **8.** Kamberaj, H., Low, R.J., and Neal, M.P. (2002) 19th International Liquid Crystal Conference 2002, Edinburgh, UK. Work presented in poster format, June 30-July 5.
Published professional conference contribution abstract	**1.** Kamberaj, H. (2011) Elucidating the modular structure of the protein G C2 fragment and human IgG Fc domain binding site using computer simulations, *European Biophysics Journal with Biophysics Letters*, 40, 108-108. **2.** van der Vaart, A., Kamberaj, H. (2009) Extracting The Causality Of Correlated Motions From Molecular Dynamics Simulations, *Biophysical Journal Abstracts*, 96(3), pp 406a.
MONOGRAPHS AND OTHER COMPLETED WORKS	

Textbook (M.Sc. and Ph.D. graduates, and researchers level):	**1.** Kamberaj, H. (2016) *Molecular Dynamics Simulations in Statistical Physics. Theory and Applications*. State University of Tetovo.
Textbook (undergraduate level):	**1.** Kamberaj, H. (2014) *Probability and Statistics. Essentials about Probability and Statistics,* International Balkan University. Skopje, R. of Macedonia. **2.** Kamberaj, H. (2014) *Thermodynamics & Statistical Physics*, State University of Tetovo, Tetovo, R. of Macedonia. **3.** Kamberaj, H. (2012) *Fundamentals of Medical Physics*, State University of Tetovo, Tetovo, R. of Macedonia. **4.** Kamberaj, H. (2010) *Introduction to Programming. An undergraduate engineering student textbook*, International Balkan University, Skopje, R. of Macedonia.
Book Chapters:	1. H. Kamberaj, Advanced Methods used in molecular dynamics simulation of macromolecules, in Advanced Computational and Applied Engineering Research, Nova Science Publishers, Inc., Submitted 2018.
Doctoral dissertation	**1.** Kamberaj, H. (2005) *Simulation and modelling of liquid crystal mesophases linked to the design of real materials*, Manchester Metropolitan University, Manchester, United Kingdom, Ph.D. Thesis. Supervisors: Prof. Dr. Maureen Neal and Prof. Dr. Robert Low
Master's thesis	**1.** Kamberaj, H. (2000) *The Influence of Detector Parameters on the Image Reconstruction for a Compton Camera*, University of Siegen, Siegen, Germany. Master Thesis. Supervisor: Prof. Dr. Nikolae Pavel
Undergraduate thesis	**1.** Kamberaj, H. (1996) *Thermodynamics and Dynamics of Two Dimensional Ising Spin Ladder Lattice Model*, B.Sc. Thesis (in Albanian), University of Tirana, Tirana, Albania. Supervisor: Prof. Dr. Rexhep Meidani
Final research report	**1.** Kamberaj, H. (2013) *Symbolic Mutual Information for Estimation of Nonlinear High Order Correlated Fluctuations*, International Balkan University, Skopje, Macedonia. **2.** Kamberaj, H. (2012) *Sampling Convergence of Collective Motions of Proteins*, International Balkan University, Skopje, Macedonia. **3.** Kamberaj, H. (2006) *Dynamics of the Proteins and Principal Component Analysis*, University of Alberta, Edmonton, Canada. **4.** Kamberaj, H. and Helms, H. (2001) *Thermodynamics of internal water molecules in the protein BPTI studied by Monte Carlo simulations*, Max-Planck Institute of Biophysics, Frankfurt am Main, Germany.
Software	**1.** BSANN (in Python). A python library for performing Bootstrapping Swarm Artificial Neural Network optimization (fitting and dimensionality reduction using encode-decode algorithm.) **2.** SIFM (in Fortran 90), Symbolic Information Flow Measurement, A Software for Measurement of Information Flow Using Symbolic Analysis. **3.** MMGBSA (in Fortran 90), A software for calculation of the solvation free energy of (bio)molecular systems (including polar and nonpolar terms). **4.** BIOMCSIM (in C), A Monte Carlo software for computer simulation of biomolecular systems (Published in Computer Physics Communication journal). **5.** SQPO (in C++), A Swarm Quantum Optimization general purpose code. **6.** MDGOSim (in Fortran, C++), Swarm Particle Replica Exchange Molecular dynamics simulations of proteins using coarse-grained methods.

	7. MDAnalTools (Matlab, Fortran, Python), A collection of programs and scripts for modeling and statistical analyzing of molecular dynamics simulations.
PERFORMED WORKS (EVENTS)	
Invited lecture at foreign university	**1.** Kamberaj, H. (2010) Causality of Correlated Motions in Biomolecular Systems & Novel Algorithm for Global Optimization Problems in Ligand and/or peptide-protein binding, Schroedinger Company, New York, NY USA, November 16.
Unpublished conference contribution	**1.** Kamberaj, H., and Sham, Y. (2009) Bioinformatics: Building Bridges Symposium, Minneapolis, MN, USA. Work presented as a poster – Computational Alanine Scanning of ß-lactamase Inhibitor Protein and TEM-1 ß-lactamase Complex, April 17. **2.** Kamberaj, H. and Sham, Y. (2009) MIKI Meeting, Minneapolis, MN, USA. Work presented as a poster – Computational Alanine Scanning of ß-lactamase Inhibitor Protein and TEM-1 ß-lactamase Complex, April 3-5. **3.** Kamberaj, H. and van der Vaart, A. (2007) Postdoctoral Research Day symposium at Biodesign Center, Tempe, Arizona, USA. Work presented as a poster - Unfolding upon binding: Elucidation of the complex binding dynamics of the Ets-1 transcription factor by computer simulation, October 6. **4.** Kamberaj, H. (2007) Annual meeting BioPhest 2007 at Arizona State University, Tempe, Arizona, USA. Work presented as a talk - Multiple scaling replica exchange method for the efficient sampling of biomolecular systems, April 21. **5.** Kamberaj, H. (2006) Postdoctoral Research Day Symposium at University of Alberta, Edmonton, Alberta, Canada. Work presented as a poster – Multiple time scale molecular dynamics simulations of biomolecular systems, April 7.
Unpublished invited conference lecture	**1.** Kamberaj, H. (2010) 8th Conference of the Society of Physicists of Republic of Macedonia, Skopje, R. of Macedonia. The role of the correlated motions in biomolecular systems, September 23-25. **2.** Kamberaj, H. and Sham, Y. (2009) Gordon Conference on Computer aided Drug Design, Tilton, NH, USA. Computational Alanine Scanning of ß-lactamase Inhibitor Protein and TEM-1 ß-lactamase Complex, July 19-24. **3.** Kamberaj, H. (2004) Mini-Symposium on the Chirality and Nonlinearity in Liquid Crystals, The Rank Prize, UK. Work presented as a talk - Calculations of Molecular Chirality, November 29-December 2. **4.** Kamberaj, H. (2004) Young Materials Modellers Forum at Daresbury Laboratory, UK. Work presented as a talk - Symplectic and Time Reversible Integrators for Molecular Dynamics Simulations of Rigid Molecules, May 27.
SCIENTIFIC RESEARCH PROJECTS	

Principal Investigator:	**1.** Kamberaj, H. (2014-Present) Thermodynamics of biomolecular systems – Free energy calculations, International Balkan University, Skopje, R. of Macedonia. **2.** Kamberaj, H. (2012-Present) *Bio-inspired optimization methods*, International Balkan University, Skopje, R. of Macedonia. **3.** Kamberaj, H. (2012-Present) *Dielectric response functions of solvent and proteins*, International Balkan University, Skopje, R. of Macedonia. **4.** Kamberaj, H. (2011-Present) *Dynamics and Static Dielectric Response of Water in ionic hydration shells using quantum mechanics simulations*, International Balkan University, Skopje, R. of Macedonia. **5.** Kamberaj, H. (2010-Present) *Protein-ligand and Protein-peptide flexible docking using Swarm Intelligence*, International Balkan University, Skopje, R. of Macedonia. **6.** Kamberaj, H. (2010-Present) *Characterization of the dynamics and thermodynamics of the protein-protein interface. A case study of IgG protein and C2 fragment of protein G*, International Balkan University, Skopje, R. of Macedonia. **7.** Kamberaj, H. (2009-2010) *Collective motions of proteins by means of principal component analysis*, International Balkan University, Skopje, R. of Macedonia.
Team Member: (2009-Present)	**1.** Kamberaj, H. and Mutlu, O., (2016-Present), *The protein-protein interaction of HDAC1/2 and CK2 complex*, Marmara University Faculty of Science and Arts, Department of Biology 34722, Istanbul, Turkey. **2.** Kamberaj, H. and van der Vaart, A., (2014) *Implementation of the Transfer Entropy Measures in CHARMM Software*, University of South Florida, Tampa, FL, USA. **3.** Isler, Y. and Kamberaj, H., (2014-Present) *Characterisation of Molecular Systems for Refrigerators*, International Balkan University, Skopje, R. of Macedonia. **4.** Mutlu, O., Kamberaj, H., (2014) *Structural Modelling, Molecular Docking and Molecular Dynamics Simulation of Trypanothione Synthase*, International Balkan University, Skopje, R. of Macedonia. **5.** Spiriti, J., Kamberaj, H., de Graff, A., Thorpe, M.P., and van der Vaart, A., (2011-2012) *DNA bending through large angles is aided by ionic screening*, International Balkan University, Skopje, R. of Macedonia. **6.** Spiriti, J., Kamberaj, H., de Graff, A., and van der Vaart, A., (2011-2012) *Development and application of enhanced sampling techniques to simulate the long-time scale dynamics of biomolecular systems*, International Balkan University, Skopje, R. of Macedonia. **7.** Kamberaj, H., Eggum, J., Muthyala, R., and Sham, Y. (2008-2009) *Vancomycin Resistance: Computational Modeling of Substrate Binding to VanX*, Center for Drug Design, University of Minnesota, USA. **8.** Kamberaj, H. and Sham, Y. (2008-2009) *Designing and docking new inhibitors for HIV protein*, Center for Drug Design, University of Minnesota, USA. **9.** Kamberaj, H and Sham, Y. (2008-2009) *Designing and Docking inhibitors for bacteria TEM-1 protein*, Center for Drug Design, University of Minnesota, USA. **10.** Kamberaj, H. and Sham, Y. (2008-2009) *Modulation of the BPTI-TEM-1 protein-protein interface using computational alanine scanning*, Center for Drug Design, University of Minnesota, USA.

(2000-2008)	**1.** Kamberaj, H. and van der Vaart, A. (2006-2008) *Investigating replica exchange method for efficient conformational sampling of biomolecular systems in explicit water*, Center for Biological physics, Arizona State University, Tempe, USA. **2.** Kamberaj, H. and van der Vaart, A. (2006-2008) Investigating correlated motions for Ets-1 –DNA complex in explicit water, Center for Biological physics, Arizona State University, Tempe, USA. **3.** Kamberaj, H. and van der Vaart, A. (2006-2008) *Applying non-Boltzmann replica exchange method for studying helix unfolding of Ets-1 upon binding to DNA*, Center for Biological physics, Arizona State University, Tempe, USA. **4.** Kamberaj, H. and van der Vaart, A. (2006-2008) *Extracting causality of correlated motion of the Et-1 protein in apo and bound to DNA states using transfer entropy*, Center for Biological physics, Arizona State University, Tempe, USA. **5.** Kamberaj, H. and van der Vaart, A. (2006-2008) *Implementation of the Hamiltonian replica exchange method in CHARMM program*, Center for Biological physics, Arizona State University, Tempe, USA. **6.** Kamberaj, H. and Stepanova, M. (2005-2006) *Developing coarse-grained models for proteins using principal component analysis*, National Institute of nanotechnology, University of Alberta, Edmonton, Canada. **7.** Kamberaj, H. and Stepanova, M. (2005-2006) *Molecular dynamics simulation of Fc fragment of IgG protein in complex with C2 fragment of protein G using Amber program*, National Institute of nanotechnology, University of Alberta, Edmonton, Canada. **8.** Kamberaj, H., Low, R.J., and Neal, M.P. (2005) *Analyzing the correlation between the scaled chiral indices and the molecular polarization*, Manchester Metropolitan University, Manchester, United Kingdom. **9.** Kamberaj, H., Low, R.J., and Neal, M.P. (2005) *Analyzing the correlation between the scaled chiral indices and the helical twisting power of chiral molecules dissolved in nematic phase*, Manchester Metropolitan University, Manchester, United Kingdom. **10.** Kamberaj, H. and Helms, V. (2000-2001) *Developing grand canonical Monte Carlo method for investigating the concentration of water molecules inside the protein cavities*, Max-Planck Institute of Biophysics, Frankfurt am Main, Frankfurt, Germany. **11.** Kamberaj, H. and Helms, V. (2000-2001) *Characterizing the dynamics and thermodynamics of water molecules inside the protein cavities*, Max-Planck Institute of Biophysics, Frankfurt am Main, Frankfurt, Germany. **12.** Kamberaj, H. and Pavel, N. (1999-2000) *Image reconstruction using the Compton camera. Optimization of detector parameters on image quality*, University of Siegen, Siegen, Germany.
MENTORSHIPS	
Master Studies:	**1.** Redona Izairi, M.Sc. (2016-2018): Study of Protein-Protein Interactions Using the Molecular Dynamics Simulations, State University of Tetova, Tetova, R. of Macedonia. **2.** Granit Nebiu, B.Sc. (2017-2018): The Semantics of Web Design and Development, International Balkan University, Skopje, R. of Macedonia. **3.** Dhurata Nebiu, B.Sc. (2017-2018): Local and Average Transfer Entropy as an Information Flow Measure, International Balkan University, Skopje, R. of Macedonia.
Bachelor Studies:	**1.** Edon Selimi, Application of a web based service for analyzing the performance of the IBU academic staff, Department of Information Technology, International Balkan Uni-

	versity, Skopje, R. of Macedonia, 2018. **2.** Amina Kofrc, Design of Online Data Base Management, Department of Computer Engineering, International Balkan University, Skopje, R. of Macedonia, 2018. **3.** Gazmend Rexhepi, IBU Study Curricula - Web Based Application, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2018. **4.** Izudin Mamudi, Library Database Management System, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2018. **5.** Donika Rexhepi, Fundamental Concepts of Classical Cryptosystems, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2017. **6.** Haris Zenovic, Design and development of a web-based platform for teaching and learning, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2017. **7.** Festim Kamberi Optimized University Students and Courses Information System, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2017. **8.** Argjent Halili, Graphical User Interface for Data Analysis with Visual Molecular Dynamics Program using Tcl/Tk, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2016. **9.** Skofiar Kamberi, Design and Application of a Database for Students, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2015. **10.** Redona Izairi, Calculations of the Electronic Properties of Molecules using Computational Quantum Mechanics Models, State University of Tetovo, Tetovo 2014.
INVITED LECTURES TRAINING AND STAYS **Training**	**1.** August –September 2014, Visiting Researcher in Computational Chemistry, University of South Florida, Department of Chemistry, Tampa, FL, USA. **2.** January 2002, Workshop at Manchester Research centre for computational science on Visualization and virtual reality for scientific applications, Manchester, United Kingdom. **3.** October 2001, Autumn School at Manchester University on High performance computing and SGI NUMAflex, Manchester, United Kingdom. **4.** December 2001, British Liquid Crystal Society Winter Workshop at Hull University, Hull, United Kingdom. **5.** June 2000, Summer school at UMIST Manchester on Molecular modeling and computer simulations, Manchester, United Kingdom.
FELLOWSHIP/ SCHOLARSHIP	**1.** Oct 1997-Feb 2000, Studentship awarded of graduate studies by German Academic of Science, University of Siegen, Siegen, Germany. **2.** Feb 2000–Aug 2001, Studentship awarded of postgraduate studies by Deutsche Forschungsgemeinschaft at Max-Planck Institute of Biophysics, Frankfurt/Main, Germany. **3.** Sept 2001–Aug 2003, Scholarship awarded of postgraduate studies by Coventry University, Coventry, United Kingdom. Pursued the M.Phil. in Physics. **4.** Sept 2003-Dec 2004, Scholarship awarded of postgraduate studies by Manchester Metropolitan University, Manchester, United Kingdom. Pursued the Ph.D. in Physics. **5.** Jan 2006-Dec 2006, Postdoctoral Fellowship awarded of postdoctoral studies by Alberta University, Edmonton, Canada.