



<b>Curriculum Vitae</b>	
<b>Personal information</b>	
<b>First name(s) / Surname(s)</b>	Hiqmet Kamberaj
<b>Address(es)</b>	International Balkan University, Tashko Karadza 11A, 1000, Skopje, R. of Macedonia
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<b>Fax(es)</b>	+389(0)23214832
<b>E-mail</b>	<a href="mailto:hkamberaj@ibu.edu.mk">hkamberaj@ibu.edu.mk</a> or <a href="mailto:h.kamberaj@gmail.com">h.kamberaj@gmail.com</a>
<b>Web address</b>	hkamberajibu.wikidot.com
<b>Nationality</b>	Albanian, Macedonian
<b>Date of birth</b>	07/09/1972
<b>Education</b>	<ol style="list-style-type: none"> <li>1. Ph.D. in Physics, 2001-2005, Manchester Metropolitan University, Manchester, United Kingdom.</li> <li>2. M.Sc. in Physics, 1997-2000, University of Siegen, Siegen, Germany.</li> <li>3. B.Sc. (5 years study program), 1991-1996, University of Tirana, Tirana, Albania.</li> </ol>
<b>Languages</b> Native Foreign languages (Reading/ writing/ speaking)	<ol style="list-style-type: none"> <li>1. Albanian</li> <li>2. English, German</li> </ol>
<b>h-Index</b> <b>Google Scholar</b> <b>ResearchGate</b> <b>Mendeley</b>	9 to 10 <a href="https://scholar.google.com/citations?user=5I1XAAcAAAAJ&amp;hl=en">https://scholar.google.com/citations?user=5I1XAAcAAAAJ&amp;hl=en</a> <a href="https://www.researchgate.net/profile/Hiqmet_Kamberaj">https://www.researchgate.net/profile/Hiqmet_Kamberaj</a> <a href="https://www.mendeley.com/profiles/hiqmet-kamberaj2/?utm_source=mm_Mandrill">https://www.mendeley.com/profiles/hiqmet-kamberaj2/?utm_source=mm_Mandrill</a>

<p><b>ACADEMIC EXPERIENCE</b></p> <p><b>Visiting scholar</b></p> <p><b>Postdoctoral positions</b></p> <p><b>Graduate student positions</b></p> <p><b>Teaching positions</b></p>	<ol style="list-style-type: none"> <li>1. 2014, Visiting Scholar Researcher, University of South Florida, USA</li> <li>2. 2008-2009, Postdoctoral Research Associate, Center for Drug Design, University of Minnesota, MN, USA.</li> <li>3. 2006-2008, Postdoctoral Research Associate. Center for Biological Physics, Arizona State University, Department of Chemistry &amp; Biochemistry, Tempe, AZ, USA.</li> <li>4. 2005-2006, Postdoctoral Fellow, University of Alberta, National Institute of Nanotechnology, Edmonton, Alberta, Canada.</li> <li>5. 2004-2005, Postdoctoral Research Associate, Manchester Metropolitan University, Manchester, United Kingdom.</li> <li>6. 2000-2001, Postgraduate Student, Max-Planck Institute of Biophysics, Frankfurt am Main, Germany.</li> <li>7. 2014-Present, Associate Professor, International Balkan University, Skopje, Republic of Macedonia.</li> <li>8. 2014-Present, Adjunct Associate Professor, State University of Tetovo, Tetovo, Republic of Macedonia.</li> <li>9. 2009-2014, Assistant Professor, International Balkan University, Skopje, Republic of Macedonia.</li> <li>10. 2011-2014, Adjunct Assistant Professor, State University of Tetovo, Tetovo, Republic of Macedonia.</li> <li>11. 2004-2005, Assistant Lecturer, Manchester Metropolitan University, Manchester, United Kingdom.</li> <li>12. 2003-2004, Teaching Assistant, Manchester Metropolitan University, Manchester, United Kingdom.</li> <li>13. 2001-2003, Teaching Assistant, University of Coventry, Coventry, United Kingdom.</li> <li>14. 1996-1997, Assistant Lecturer, University of Tirana, Tirana, Albania.</li> </ol>
<p><b>Teaching Assignments</b></p> <p><b>Courses at IBU</b></p>	<p><b><u>Undergraduate Level:</u></b></p> <ul style="list-style-type: none"> <li>• Introduction to Programming</li> <li>• Computer Architecture</li> <li>• Discrete Computational Structure</li> <li>• Discrete Mathematics</li> <li>• Algorithms</li> <li>• Systems Modeling</li> <li>• Introduction to Information Technology</li> <li>• Introduction to Probability &amp; Statistics</li> <li>• Physics I</li> <li>• Physics II</li> <li>• Electromagnetic Theory</li> </ul>

<p><b>Other Universities (State University of Tetovo)</b></p>	<p><b><u>Graduate Level:</u></b></p> <ul style="list-style-type: none"> <li>• Information Theory</li> <li>• Theory of Probability</li> </ul> <p><b><u>Undergraduate Level:</u></b></p> <ul style="list-style-type: none"> <li>• Statistical Physics</li> <li>• Classical Mechanics</li> <li>• Electrodynamics</li> <li>• Medical Physics</li> </ul> <p><b><u>Graduate Level:</u></b></p> <ul style="list-style-type: none"> <li>• Theoretical Methods in Physics</li> </ul>
<p><b>Research interests and fields</b></p>	<ul style="list-style-type: none"> <li>• Theoretical and Computational Physics/Chemistry</li> <li>• Soft matter, Biophysics and Nanophysics</li> <li>• Protein and DNA dynamics</li> <li>• Bio-inspired optimization</li> <li>• Bioinformatics</li> <li>• Numerical integrators for molecular dynamics</li> <li>• Monte Carlo and molecular dynamics techniques</li> <li>• Free energy calculations</li> <li>• Information flow in biomolecular systems</li> <li>• Coarse-grained models of proteins and DNA</li> <li>• Swarm particle intelligence optimization</li> <li>• GPU-accelerated computing</li> <li>• Quantum simulations of molecular systems</li> </ul>
<p><b>Administrative Working Experience</b></p> <p><b>Professional Memberships</b></p>	<ul style="list-style-type: none"> <li>• <b>Acting Dean of Faculty of Engineering</b> (2017-Present): International Balkan University</li> <li>• <b>Rector's Advisor for Research and Projects</b> (2015-Present): International Balkan University</li> <li>• <b>President of Student Evaluation Committee</b> (2012-Present): International Balkan University</li> <li>• <b>Member of the Senate</b> (2009-Present): International Balkan University</li> <li>• <b>Member of the Faculty Council</b> (2009-Present): International Balkan University</li> </ul> <ul style="list-style-type: none"> <li>• 2014-Present Research Institute of Science and Technology (Albania)</li> <li>• 2017-Present Subscriber Member of Nature Methods Techniques for Life Scientists and Chemists (USA)</li> <li>• 2011-2016 American Chemical Society (USA)</li> <li>• 2006-2009 American Biophysics Society (USA)</li> <li>• 2001-2005 British Liquid Crystal Society (UK)</li> </ul>

<b>Professional Experience</b>	<ul style="list-style-type: none"> <li>• <b>Editor-in-Chief</b> of American Journal of Applied Sciences, Engineering and Technology (2014-2015).</li> <li>• <b>Editorial Board Member</b> of: International Journal of Dataset Papers in Physics (2012-2017); Turkish Academic Journal of Intelligent Systems.</li> <li>• <b>Peer Reviewer</b> of: International Journal of Computational and Theoretical Chemistry; <u>International Journal of Electrical Power &amp; Energy Systems</u>; Science Journal of Applied Mathematics and Statistics; Journal of Chemical Information and Modeling; BMC Bioinformatics; Entropy.</li> </ul>
<b>Awards</b>	<ol style="list-style-type: none"> <li>1. 2016: Certificate of Excellence (Motivation: For his outstanding performance in academic research during the academic year 2015/2016), International Balkan University.</li> <li>2. First Prize in Bioinformatics: Building Bridges Symposium, Minneapolis, MN, USA (17 April 2009). Work presented as a poster – <i>Computational Alanine scanning of <math>\beta</math>-lactamase Inhibitor Protein and TEM-1 <math>\beta</math>-lactamase Complex</i>.</li> <li>3. Summer 1996: Dean’s list of outstanding students, University of Tirana, Tirana, Albania.</li> <li>4. April 1986: Second prize of the mathematical Olympiad, Vlora, Albania.</li> </ol>
<b>PUBLICATIONS</b>	
<b>Original scientific article (Including electronic journals) (2014-Present)</b>	<ol style="list-style-type: none"> <li>1. H. Kamberaj, (2018) Faster Protein Folding Using Enhanced Conformational Sampling of Molecular Dynamics Simulation, <i>Journal of Molecular Graphics and Modelling</i>, 81, 32-49.</li> <li>2. R. Izairi and H. Kamberaj, (2017) Comparison Study of Polar and Non-polar Contributions to Solvation Free Energy, <i>Journal of Chemical Information and Modeling</i>, 57(10), 2539-2553.</li> <li>3. H. Kamberaj, (2017) Sampling Convergence of Collective Motions in Proteins, <i>Journal of Applied Physical Science International</i>, 8(3), 101-112.</li> <li>4. H. Kamberaj, (2016) Replica Exchange Using q-Gaussian Swarm Quantum Particle Intelligence Method, <i>Engineering and Applied Sciences</i>, 1(2), 20-25.</li> <li>5. H. Kamberaj, (2015) Conformational Sampling Enhancement of Replica Exchange Molecular Dynamics Simulations Using Swarm Particle Intelligence, <i>The Journal of Chemical Physics</i>, 143, 124105.</li> <li>6. H. Kamberaj, (2014) Q-Gaussian Swarm Quantum Particle Intelligence on Predicting Global Minimum of Potential Energy Function, <i>Applied Mathematics and Computation</i>, 229, 94-106.</li> </ol> <ol style="list-style-type: none"> <li>7. Spiriti, J., Kamberaj, H., de Graff, A., Thorpe, M.P., and van der Vaart, A., (2012) DNA bending through large angles is aided by ionic screening, <i>Journal of Chemical Theory and Computation</i>, 8 (6), 2145–2156.</li> <li>8. 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, <i>International Journal of Quantum Chemistry</i>, 112, 33-43.</li> <li>9. Kamberaj, H. (2011) A Theoretical Model for the Collective Motion of Proteins by Means</li> </ol>
<b>(2009-2013)</b>	

<p style="text-align: center;"><b>(2001-2008)</b></p>	<p>of Principal Component Analysis. <i>Central European Journal of Physics</i>, 9(1), 96-109.</p> <p>10. Kamberaj, H. and van der Vaart, A. (2009) Extracting the causality of correlated motions from molecular dynamics simulations. <i>Biophysical Journal</i>, 97(6), 1747-1755.</p> <p>11. Kamberaj, H. and van der Vaart, A. (2009) An optimized replica exchange method for molecular dynamics simulations. <i>Journal of Chemical Physics</i>, 130(7), 074904-6.</p> <p>12. Kamberaj, H. and van der Vaart, A. (2009) Correlated Motions and Interactions at the Onset of the DNA-Induced Partial Unfolding of Ets-1. <i>Biophysical Journal</i>, 96, 1307-1317.</p> <p>13. Kamberaj, H. and van der Vaart, A. (2007) Multiple scaling replica exchange method for the efficient sampling of biomolecular systems. <i>The Journal of Chemical Physics</i>, 127(23), 234102-7.</p> <p>14. Kamberaj, H., Low, R.J., and Neal, M.P. (2006) Correlation between molecular chirality and helical twisting power. A computer simulation study. <i>Molecular Physics</i>, 104(3), 335-357.</p> <p>15. Neal, M.P., Kamberaj, H., and Low, R.J. (2005) Some calculations of molecular chirality. <i>Molecular Crystal Liquid Crystal</i>, 439, 1937-1943.</p> <p>16. Kamberaj, H., Low, R.J., and Neal, M.P. (2005) Molecular structure and helical twisting power, <i>Ferroelectrics</i>, 315, 183-196.</p> <p>17. Kamberaj, H., Low, R.J., and Neal, M.P. (2005) Symplectic and time reversible integrators for molecular dynamics simulations of rigid molecules. <i>The Journal Chemical Physics</i>, 122(22), 224114-30.</p> <p>18. Kamberaj, H., Osipov, M.A., Low, R.J., and Neal, M.P. (2004) Helical twisting power and chirality indices. <i>Molecular Physics</i>, 102(5), 431-446.</p> <p>19. Kamberaj, H., Low, R.J., and Neal, M.P. (2003) Symplectic and time reversible integrators for rigid bodies. <i>System Science</i>, 29(2), 31-45.</p> <p>20. Kamberaj, H., and Helms, V. (2001) Monte Carlo simulation of biomolecular systems with BIOMCSIM, <i>Computer Physics Communications</i>, 141 (3), 375-402.</p>
<p style="text-align: center;"><b>Published scientific conference contribution Full paper</b></p>	<p>1. Kamberaj, H., Low, R.J., and Neal, M.P. (2003) <i>Symplectic and time reversible integrators for rigid bodies</i>, 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.</p> <p>2. T. Conka-Nurdan, K. Nurdan, F. Constantinescu, B. Freisleben, H. Kamberaj, N.A. Pavel, I. Rauhut, K. Reichmann, A.H. Walenta (2001) <i>Influence of the Detector Parameters on a Compton Camera</i>, IEEE, 22-26.</p>

<p><b>Published scientific conference contribution abstract</b> <b>Abstract</b></p>	
<p><b>(2014-Present)</b></p>	<ol style="list-style-type: none"> <li>1. 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.</li> <li>2. Kamberaj, H., Perspectives on Molecular Dynamics Simulations &amp; Free Energy Calculations for Biomolecular Systems, International Conference on Applied Sciences, Engineering and Mathematics, Ohrid, R. of Macedonia, May 5-7, 2017.</li> <li>3. Izairi, R. and Kamberaj, H., <i>Molecular Dynamics Simulation Study of Protein-Protein Interactions</i>, ALBNANO2016 NANOTECHNOLOGY AND BIOSENSORS, May 29-31, 2016, Tirana, Albania.</li> <li>4. Kamberaj, H., 2nd International Conference on Pure &amp; Applied Science, June 1-5 2016, Istanbul Turkey, <i>Enhanced Transition Path Sampling Using Swarm Particle Intelligence in Replica Exchange Molecular Dynamics</i>.</li> <li>5. Izairi, R. and Kamberaj, H., The 10th Conference of the Society of Physicists of Macedonia, Skopje, Macedonia, September 25-28, 2014, <i>Calculations of the Electronic Properties of Molecules using Computational Quantum Mechanics Models</i>.</li> <li>6. Mutlu, O., Kamberaj, H., 2nd International Bau-Drug Design Symposium, <i>Novel methods and emerging targets in drug discovery &amp; patented drug development</i>, Bahcesehir University, Istanbul, Turkey, 17-19 April 2014, <i>Structural Modelling, Molecular Docking and Molecular Dynamics Simulation of Trypanothione Synthase</i>.</li> </ol>
<p><b>(2009-2013)</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H., International Conference on Applied Analysis and Mathematical Modeling, Istanbul, Turkey, 2-5 June 2013, <i>Symbolic Mutual Information for Estimation of Nonlinear Higher Order Correlated Fluctuations</i>.</li> <li>2. Kamberaj, H., International Meeting on Atomic and Molecular Physics and Chemistry, Scuola Normale Superiore Pisa, Italy (12-14 September 2012), <i>Dynamics and static dielectric response of water in anionic hydration shells using ab-initio molecular dynamics simulation</i>.</li> <li>3. Kamberaj, H., 6th International Annual Meeting of Alb-Science Institute, Prishtina, Kosova (1-4 September 2011), <i>Modeling of protein-protein interactions: Calculation of the binding free energy and computational alanine scanning</i>.</li> <li>4. Kamberaj, H., 8th European Biophysics Congress, Budapest, Hungary (23-27 August 2011), <i>Elucidating the modular structure of the protein G C2 fragment and human IgG Fc domain binding site using computer simulations</i>.</li> </ol>

<b>(2002-2008)</b>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. and van der Vaart, A. (2008) Biophysics Society 52-th Annual Meeting &amp; 16-th IUPAB International Biophysics Congress, Long Beach, CA, USA. Work presented as a poster - <i>Unfolding upon binding: Elucidation of the complex binding dynamics of the Ets-1 transcription factor by computer simulation</i>, February 2-6.</li> <li>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 – <i>On predicting ferroelectric liquid crystal reduced spontaneous polarization or polarization power</i>, July 2-7.</li> <li>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 – <i>Calculation of molecular chirality and helical twisting power</i>, July 1-6.</li> <li>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 - <i>Calculations of the Molecular Chirality</i>, March 22-26.</li> <li>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 - <i>Applications of Calculations of the Molecular Chirality and Helical Twisting Power</i>, April 5-7.</li> <li>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 – <i>Molecular structure and helical twisting power</i>, August 24-29.</li> <li>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.</li> <li>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.</li> </ol>
<b>Published professional conference contribution abstract</b>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (2011) Elucidating the modular structure of the protein G C2 fragment and human IgG Fc domain binding site using computer simulations, <i>European Biophysics Journal with Biophysics Letters</i>, 40, 108-108.</li> <li>2. van der Vaart, A., Kamberaj, H. (2009) Extracting The Causality Of Correlated Motions From Molecular Dynamics Simulations, <i>Biophysical Journal Abstracts</i>, 96(3), pp 406a.</li> </ol>
<b>MONOGRAPHS AND OTHER COMPLETED WORKS</b>	

<p><b>Textbook (M.Sc. and Ph.D. graduates, and researchers level):</b></p> <p><b>Textbook (undergraduate level):</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (2016) <i>Molecular Dynamics Simulations in Statistical Physics. Theory and Applications</i>. State University of Tetovo.</li> <li>1. Kamberaj, H. (2014) <i>Probability and Statistics. Essentials about Probability and Statistics</i>, International Balkan University. Skopje, R. of Macedonia.</li> <li>2. Kamberaj, H. (2014) <i>Thermodynamics &amp; Statistical Physics</i>, State University of Tetovo, Tetovo, R. of Macedonia.</li> <li>3. Kamberaj, H. (2012) <i>Fundamentals of Medical Physics</i>, State University of Tetovo, Tetovo, R. of Macedonia.</li> <li>4. Kamberaj, H. (2010) <i>Introduction to Programming. An undergraduate engineering student textbook</i>, International Balkan University, Skopje, R. of Macedonia.</li> </ol>
<p><b>Doctoral dissertation</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (2005) <i>Simulation and modelling of liquid crystal mesophases linked to the design of real materials</i>, Manchester Metropolitan University, Manchester, United Kingdom, Ph.D. Thesis. Supervisors: Prof. Dr. Maureen Neal and Prof. Dr. Robert Low</li> </ol>
<p><b>Master's thesis</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (2000) <i>The Influence of Detector Parameters on the Image Reconstruction for a Compton Camera</i>, University of Siegen, Siegen, Germany. Master Thesis. Supervisor: Prof. Dr. Nikolae Pavel</li> </ol>
<p><b>Undergraduate thesis</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (1996) <i>Thermodynamics and Dynamics of Two Dimensional Ising Spin Ladder Lattice Model</i>, B.Sc. Thesis (in Albanian), University of Tirana, Tirana, Albania. Supervisor: Prof. Dr. Rexhep Meidani</li> </ol>
<p><b>Final research report</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (2013) <i>Symbolic Mutual Information for Estimation of Nonlinear High Order Correlated Fluctuations</i>, International Balkan University, Skopje, Macedonia.</li> <li>2. Kamberaj, H. (2012) <i>Sampling Convergence of Collective Motions of Proteins</i>, International Balkan University, Skopje, Macedonia.</li> <li>3. Kamberaj, H. (2006) <i>Dynamics of the Proteins and Principal Component Analysis</i>, University of Alberta, Edmonton, Canada.</li> <li>4. Kamberaj, H. and Helms, H. (2001) <i>Thermodynamics of internal water molecules in the protein BPTI studied by Monte Carlo simulations</i>, Max-Planck Institute of Biophysics, Frankfurt am Main, Germany.</li> </ol>
<p><b>Software</b></p>	<ol style="list-style-type: none"> <li>1. MMGBSA (in Fortran 90), A software for calculation of the solvation free energy of (bio)molecular systems (including polar and nonpolar terms).</li> <li>2. BIOMCSIM (in C), A Monte Carlo software for computer simulation of biomolecular systems (Published in Computer Physics Communication journal).</li> <li>3. SQPO (in C++), A Swarm Quantum Optimization general purpose code.</li> <li>4. MDGOSim (in Fortran, C++), Swarm Particle Replica Exchange Molecular dynamics simulations of proteins using coarse-grained methods.</li> <li>5. MDAnalTools (Matlab, Fortran, Python), A collection of programs and scripts for modeling and statistical analyzing of molecular dynamics simulations.</li> </ol>
<p><b>PERFORMED WORKS (EVENTS)</b></p>	
<p><b>Invited lecture at foreign university</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (2010) Causality of Correlated Motions in Biomolecular Systems &amp; Novel Algorithm for Global Optimization Problems in Ligand and/or peptide-protein binding, Schroedinger Company, New York, NY USA, November 16.</li> </ol>



<p><b>Unpublished conference contribution</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H., and Sham, Y. (2009) Bioinformatics: Building Bridges Symposium, Minneapolis, MN, USA. Work presented as a poster – Computational Alanine Scanning of <math>\beta</math>-lactamase Inhibitor Protein and TEM-1 <math>\beta</math>-lactamase Complex, April 17.</li> <li>2. Kamberaj, H. and Sham, Y. (2009) MIKI Meeting, Minneapolis, MN, USA. Work presented as a poster – Computational Alanine Scanning of <math>\beta</math>-lactamase Inhibitor Protein and TEM-1 <math>\beta</math>-lactamase Complex, April 3-5.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ol>
<p><b>Unpublished invited conference lecture</b></p>	<ol style="list-style-type: none"> <li>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.</li> <li>2. Kamberaj, H. and Sham, Y. (2009) Gordon Conference on Computer aided Drug Design, Tilton, NH, USA. Computational Alanine Scanning of <math>\beta</math>-lactamase Inhibitor Protein and TEM-1 <math>\beta</math>-lactamase Complex, July 19-24.</li> <li>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.</li> <li>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.</li> </ol>
<p><b>SCIENTIFIC RESEARCH PROJECTS</b></p>	

<b>Principal Investigator:</b>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. (2014-Present) Thermodynamics of biomolecular systems – Free energy calculations, International Balkan University, Skopje, R. of Macedonia.</li> <li>2. Kamberaj, H. (2012-Present) <i>Bio-inspired optimization methods</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>3. Kamberaj, H. (2012-Present) <i>Dielectric response functions of solvent and proteins</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>4. Kamberaj, H. (2011-Present) <i>Dynamics and Static Dielectric Response of Water in ionic hydration shells using quantum mechanics simulations</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>5. Kamberaj, H. (2010-Present) <i>Protein-ligand and Protein-peptide flexible docking using Swarm Intelligence</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>6. Kamberaj, H. (2010-Present) <i>Characterization of the dynamics and thermodynamics of the protein-protein interface. A case study of IgG protein and C2 fragment of protein G</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>7. Kamberaj, H. (2009-2010) <i>Collective motions of proteins by means of principal component analysis</i>, International Balkan University, Skopje, R. of Macedonia.</li> </ol>
<b>Team Member: (2009-Present)</b>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. and Mutlu, O., (2016-Present), <i>The protein-protein interaction of HDAC1/2 and CK2 complex</i>, Marmara University Faculty of Science and Arts, Department of Biology 34722, Istanbul, Turkey.</li> <li>2. Kamberaj, H. and van der Vaart, A., (2014) <i>Implementation of the Transfer Entropy Measures in CHARMM Software</i>, University of South Florida, Tampa, FL, USA.</li> <li>3. Isler, Y. and Kamberaj, H., (2014-Present) <i>Characterisation of Molecular Systems for Refrigerators</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>4. Mutlu, O., Kamberaj, H., (2014) <i>Structural Modelling, Molecular Docking and Molecular Dynamics Simulation of Trypanothione Synthase</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>5. Spiriti, J., Kamberaj, H., de Graff, A., Thorpe, M.P., and van der Vaart, A., (2011-2012) <i>DNA bending through large angles is aided by ionic screening</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>6. Spiriti, J., Kamberaj, H., de Graff, A., and van der Vaart, A., (2011-2012) <i>Development and application of enhanced sampling techniques to simulate the long-time scale dynamics of biomolecular systems</i>, International Balkan University, Skopje, R. of Macedonia.</li> <li>7. Kamberaj, H., Eggum, J., Muthyala, R., and Sham, Y. (2008-2009) <i>Vancomycin Resistance: Computational Modeling of Substrate Binding to VanX</i>, Center for Drug Design, University of Minnesota, USA.</li> <li>8. Kamberaj, H. and Sham, Y. (2008-2009) <i>Designing and docking new inhibitors for HIV protein</i>, Center for Drug Design, University of Minnesota, USA.</li> <li>9. Kamberaj, H and Sham, Y. (2008-2009) <i>Designing and Docking inhibitors for bacteria TEM-1 protein</i>, Center for Drug Design, University of Minnesota, USA.</li> <li>10. Kamberaj, H. and Sham, Y. (2008-2009) <i>Modulation of the BPTI-TEM-1 protein-protein interface using computational alanine scanning</i>, Center for Drug Design, University of Minnesota, USA.</li> </ol>

<p><b>(2000-2008)</b></p>	<ol style="list-style-type: none"> <li>1. Kamberaj, H. and van der Vaart, A. (2006-2008) <i>Investigating replica exchange method for efficient conformational sampling of biomolecular systems in explicit water</i>, Center for Biological physics, Arizona State University, Tempe, USA.</li> <li>2. Kamberaj, H. and van der Vaart, A. (2006-2008) <i>Investigating correlated motions for Ets-1 –DNA complex in explicit water</i>, Center for Biological physics, Arizona State University, Tempe, USA.</li> <li>3. Kamberaj, H. and van der Vaart, A. (2006-2008) <i>Applying non-Boltzmann replica exchange method for studying helix unfolding of Ets-1 upon binding to DNA</i>, Center for Biological physics, Arizona State University, Tempe, USA.</li> <li>4. Kamberaj, H. and van der Vaart, A. (2006-2008) <i>Extracting causality of correlated motion of the Et-1 protein in apo and bound to DNA states using transfer entropy</i>, Center for Biological physics, Arizona State University, Tempe, USA.</li> <li>5. Kamberaj, H. and van der Vaart, A. (2006-2008) <i>Implementation of the Hamiltonian replica exchange method in CHARMM program</i>, Center for Biological physics, Arizona State University, Tempe, USA.</li> <li>6. Kamberaj, H. and Stepanova, M. (2005-2006) <i>Developing coarse-grained models for proteins using principal component analysis</i>, National Institute of nanotechnology, University of Alberta, Edmonton, Canada.</li> <li>7. Kamberaj, H. and Stepanova, M. (2005-2006) <i>Molecular dynamics simulation of Fc fragment of IgG protein in complex with C2 fragment of protein G using Amber program</i>, National Institute of nanotechnology, University of Alberta, Edmonton, Canada.</li> <li>8. Kamberaj, H., Low, R.J., and Neal, M.P. (2005) <i>Analyzing the correlation between the scaled chiral indices and the molecular polarization</i>, Manchester Metropolitan University, Manchester, United Kingdom.</li> <li>9. Kamberaj, H., Low, R.J., and Neal, M.P. (2005) <i>Analyzing the correlation between the scaled chiral indices and the helical twisting power of chiral molecules dissolved in nematic phase</i>, Manchester Metropolitan University, Manchester, United Kingdom.</li> <li>10. Kamberaj, H. and Helms, V. (2000-2001) <i>Developing grand canonical Monte Carlo method for investigating the concentration of water molecules inside the protein cavities</i>, Max-Planck Institute of Biophysics, Frankfurt am Main, Frankfurt, Germany.</li> <li>11. Kamberaj, H. and Helms, V. (2000-2001) <i>Characterizing the dynamics and thermodynamics of water molecules inside the protein cavities</i>, Max-Planck Institute of Biophysics, Frankfurt am Main, Frankfurt, Germany.</li> <li>12. Kamberaj, H. and Pavel, N. (1999-2000) <i>Image reconstruction using the Compton camera. Optimization of detector parameters on image quality</i>, University of Siegen, Siegen, Germany.</li> </ol>
<p><b>MENTORSHIPS</b></p>	<p><b>Master Studies:</b></p> <ol style="list-style-type: none"> <li>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.</li> <li>2. Granit Nebiu, B.Sc. (2017-2018): The Semantics of Web Design and Development, International Balkan University, Skopje, R. of Macedonia.</li> <li>3. Dhurata Nebiu, B.Sc. (2017-Present): Local and Average Transfer Entropy as an Information Flow Measure, International Balkan University, Skopje, R. of Macedonia.</li> </ol> <p><b>Bachelor Studies:</b></p> <ol style="list-style-type: none"> <li>1. Donika Rexhepi, Fundamental Concepts of Classical Cryptosystems, Department of In-</li> </ol>

	<p>formation Technology, International Balkan University, Skopje, R. of Macedonia, 2017.</p> <ol style="list-style-type: none"> <li>2. 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.</li> <li>3. Festim Kamberi Optimized University Students and Courses Information System, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2017.</li> <li>4. 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.</li> <li>5. Skofiar Kamberi, Design and Application of a Database for Students, Department of Information Technology, International Balkan University, Skopje, R. of Macedonia, 2015.</li> <li>6. Redona Izairi, Calculations of the Electronic Properties of Molecules using Computational Quantum Mechanics Models, State University of Tetovo, Tetovo 2014.</li> </ol>
<p><b>INVITED LECTURES TRAINING AND STAYS Training</b></p>	<ol style="list-style-type: none"> <li>1. August –September 2014, Visiting Researcher in Computational Chemistry, University of South Florida, Department of Chemistry, Tampa, FL, USA.</li> <li>2. January 2002, Workshop at Manchester Research centre for computational science on Visualization and virtual reality for scientific applications, Manchester, United Kingdom.</li> <li>3. October 2001, Autumn School at Manchester University on High performance computing and SGI NUMAflex, Manchester, United Kingdom.</li> <li>4. December 2001, British Liquid Crystal Society Winter Workshop at Hull University, Hull, United Kingdom.</li> <li>5. June 2000, Summer school at UMIST Manchester on Molecular modeling and computer simulations, Manchester, United Kingdom.</li> </ol>
<p><b>FELLOWSHIP/ SCHOLARSHIP</b></p>	<ol style="list-style-type: none"> <li>1. Oct 1997-Feb 2000, Studentship awarded of graduate studies by German Academic of Science, University of Siegen, Siegen, Germany.</li> <li>2. Feb 2000–Aug 2001, Studentship awarded of postgraduate studies by Deutsche Forschungsgemeinschaft at Max-Planck Institute of Biophysics, Frankfurt/Main, Germany.</li> <li>3. Sept 2001–Aug 2003, Scholarship awarded of postgraduate studies by Coventry University, Coventry, United Kingdom. Pursued the M.Phil. in Physics.</li> <li>4. Sept 2003-Dec 2004, Scholarship awarded of postgraduate studies by Manchester Metropolitan University, Manchester, United Kingdom. Pursued the Ph.D. in Physics.</li> <li>5. Jan 2006-Dec 2006, Postdoctoral Fellowship awarded of postdoctoral studies by Alberta University, Edmonton, Canada.</li> </ol>