

## CURRICULUM VITAE

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[zaal.machavariani@tsu.ge](mailto:zaal.machavariani@tsu.ge) *official*
6. Data and place of birth: *December 3, 1971 Tbilisi, Georgia*
7. Nationality: *Georgian*
8. Marital Status: *Married*



## EDUCATION AND ACADEMIC DEGREE

9. *Diploma with Honors of Tbilisi State University, Department of Physics, July 25, 1993, Physicist, Theoretician*
10. *Candidate of Physical and Mathematical Sciences ( 01.11.1999)*

## PARTICIPATION IN THE SCIENTIFIC GRANT PROJECTS

11. *Joint research grant from STCU (Science and Technology Center in Ukraine, #6207) (2016-2018)*
12. *SRNSF (Shota Rustaveli National Science Foundation, Georgia, #04/04) (2014-2016)*
13. *INTAS Collaborative Call with the South-Caucasian Republics ID 9041 (2007-2008)*
14. *Finance program of ministry of education and science of Georgia (2004-2005)*
15. *ISTC International Science and Technology Center PROJECT N G-801 (2003-2005)*

## SCIENTIFIC AWARDS

16. *NATO Fellowship Grant (2001-2002)*
17. *The Scholarship of President of Georgia For Young Scientists (2003-2006)*
18. *Fulbright Scholar Program Funded by US Embassy in Georgia, pursued post-doctoral research in Atomic Physics in USA, University of Missouri-Rolla (2007-2008)*
19. *DAAD fellowship (2012-2013) MPI in Heidelberg (Germany)*

## **PARTICIPATION IN THE INTERNATIONAL CONFERENCES AND WORKSHOPS**

20. *International conference on electron and photon impact ionization and Related topics, Metz , France(2002)*
21. *Participant of the Joint ICTP/IAEA Workshop on Atomic and Molecular Data for Fusion Energy Research, Trieste, Italy (2006)*
22. *9<sup>th</sup> European Conference on Atoms Molecules & Photons, Hersonissos, Crete, Greece (2007)*
23. *Scheduled Joint ICTP/IAEA Workshop on Atomic and Molecular Data for Fusion, Trieste, Italy (2009)*
24. *The International Conference Modern Algebra and Its Application Batumi, Georgia (2011)*
25. *Gettering and Defect Engineering in Semiconductor Technology(GADEST) Germany (2015)*

## **SCIENTIFIC PUBLICATIONS**

26. List of publications: titles, dates and places, publication
  - 1) *T. Chelidze, Z. S. Machavariani, B. Beradze "Donor impurity in quantum dots charge density distribution in spherical nanoparticle with centered impurity atom" Georgian Electronic Scientific Journal (GESJ) accepted for publication (2017)*
  - 2) *Z. S. Machavariani "The effects of the optical anisotropy for the system with one electron confined in ellipsoidal potential wall " Georgian Electronic Scientific Journal (GESJ) N1(15) pp73-77 (2016)*
  - 3) *A Dorn, Z. S. Machavariani "The electron-impact double ionization of helium: dynamical variational treatment " Georgian Electronic Scientific Journal (GESJ) N1(13) pp26-35 (2015)*
  - 4) *T. Kereselidze, Z. S. Machavariani "Application of variational principle to scattering problems" Journal of Mathematical Sciences December 2013, Volume 195, Issue 4, pp 473-480 (2013)*
  - 5) *P Defrance, T Kereselidze, J Lecointre and Z S Machavariani "Application of the Coulomb spheroidal basis for diatomic molecular calculations" Journal of Physics: Conference Series 388 152024 (2012)*
  - 6) *P Defrance, T Kereselidze, J Lecointre and Z S Machavariani "Electron-impact ionization of the hydrogen atom: dynamical variational treatment" Journal of Physics: Conference Series 388 042037(2012)*
  - 7) *P Defrance, T Kereselidze, J Lecointre, Z S Machavariani "Electron-impact ionization of atomic hydrogen: dynamical variational treatment" Eur. Phys. J. D 64, (2011) 303-310*
  - 8) *T. Kereselidze, Z.S. Machavariani and G. Chkadua "Explicit spheroidal wave functions of the hydrogen atom" Eur. Phys. J. D 63 (2011) 81-87*

- 9) P Defrance, J J Jureta, T Kereselidze, J Lecointre, Z S Machavariani "Screening effects and total cross sections of single, double and triple ionization of neon by fast electrons" *J. Phys. B: At. Mol. Opt. Phys.* **42** 025202 (2009)
- 10) J. S. Alexander, A. C. Laforge, A. Hasan, Z. S. Machavariani, M. F. Ciappina, R. D. Rivarola, D. H. Madison, and M. Schulz "Interference effects due to projectile target nucleus scattering in single ionization of H<sub>2</sub> by 75-keV proton impact" *Phys. Rev. A* **78**, 060701(R) (2008)
- 11) E Bahati, H Cherkani-Hassani, P Defrance, J J Jureta, T Kereselidze, Z Machavariani and I L Noselidze "On the behaviour of the (e,3e) total cross section for helium at high and intermediate energies" *J. Phys. B: At. Mol. Opt. Phys.* **38** 1261-1277 (2005)
- 12) P Defrance, T M Kereselidze, Z S Machavariani "Double ionization of helium-like ions by electron impact: Role of angular correlation between the target electrons" *Nuclear Instruments and Methods in Physics Research B (NIM B)* v205 pg405-409 (2003) ( North Holland)
- 13) P Defrance, T M Kereselidze, Z S Machavariani, I L Noselidze "Double ionization of helium-like ions by electron impact: from fully differential to total cross section" *J. Phys. B: At. Mol. Opt. Phys.* **33** 4323-4335 (2000)
- 14) P Defrance, T M Kereselidze, Z S Machavariani, J V Mebonia "Influence of kinematical conditions on the shape of (e,3e) differential cross section for H<sup>-</sup>" *J. Phys. B: At. Mol. Opt. Phys.* **32** 2227-2244 (1999)
- 15) P Defrance, T M Kereselidze, Z S Machavariani "Double ionization of He-like ions by electrons:I Analytical expression for the 8DCS" XXI ICPEAC-Twenty one International Conference on the Physics of Electronic and Atomic Collisions, Scientific Program and Abstracts of contributed papers, Sendai, Japan p.366 (1999)
- 16) P Defrance, T M Kereselidze, Z S Machavariani "Double ionization of He-like ions by electrons:II Analytical expression for the 4DCS" XXI ICPEAC-Twenty one International Conference on the Physics of Electronic and Atomic Collisions, Scientific Program and Abstracts of contributed papers, Sendai, Japan p.367 (1999)
- 17) P Defrance, T M Kereselidze, Z S Machavariani "Double ionization of He-like ions by electrons:III Universal formula for the total cross section" XXI ICPEAC-Twenty one International Conference on the Physics of Electronic and Atomic Collisions, Scientific Program and Abstracts of contributed papers, Sendai, Japan p.368 (1999)
- 18) T M Kereselidze, Z S Machavariani and I L Noselidze "Asymptotically exact Coulomb spheroidal wavefunctions" *J. Phys. B: At. Mol. Opt. Phys.* **31** 15-29(1998)
- 19) T M Kereselidze, Z S Machavariani and I L Noselidze "The Two-Centre Coulomb Spheroidal Wavefunction" XXth ICPEAC-Twentieth International Conference on the Physics of Electronic and Atomic Collisions, Scientific Program and Abstracts of contributed papers, Fr.029, Vienna, Austria (1997)

- 20) *T M Kereselidze, Z S Machavariani and I L Noselidze "The Coulomb Spheroidal Wavefunctions: Asymptotic solutions" J. Phys. B: At. Mol. Opt. Phys. 29 257-273(1996)*

## **SEMINARS AT THE FOREIGN UNIVERSITIES AND RESEARCH CENTERS**

27. *University of Missouri-Rolla (2008)*  
28. *ICTP Trieste Italy (2009)*  
29. *Max-Plank Institute in Heidelberg (Germany) (2013)*

## **PROFESSIONAL EXPERIENCE**

30. *Laboratory Assistant at the Department of General Physics, Tbilisi State University ( 1996-1998).*  
31. *Senior Scientific Researcher at the Laboratory of Applied Electronics at the Department of General Physics, Tbilisi State University (1999-2005).*  
32. *Associate Professor at the Faculty of Exact and Natural Sciences, Tbilisi State University ( 2006-2009).*  
33. *Elected Representative of the Quality Control Service of Tbilisi State University at the Faculty of Exact and Natural Sciences (2007-2008).*  
34. *Assistant Professor at the Faculty of Exact and Natural Sciences, Tbilisi State University (2010-2012)*  
35. *Associate Professor at the Faculty of Exact and Natural Sciences, Tbilisi State University ( 2012-present).*

## **PEDAGOGICAL EXPERIENCE**

36. *Course of practical trainings in Atomic and Nuclear Physics at the Physics Faculty of Tbilisi State University (1998-2000)*  
37. *Course in Advanced Atomic Physics, Tbilisi State University (2006)*  
38. *Course of lectures and practical trainings in higher Mathematics and Probability Theory, Georgian University of Quality Control (2003-2006)*  
39. *Course of the lectures in Atomic Physics at the Faculty of Exact and Natural Sciences of Tbilisi State University (2007-present)*  
40. *Course of Theoretical Nuclear Physics for Master degree's program of the Faculty of Exact and Natural Sciences of Tbilisi State University (since 2012)*

## **TECHNICAL SKILLS**

41. Computer programs: *MSDOS, WINDOWS, MS OFFICE ,  
FORTRAN, C/C++,MATHCAD,MATLAB, MAPLE*

## **LANGUAGE SKILLS**

42. Languages: *Georgian: (Native) Russian (Fluent), English (Fluent)*