



Malkhaz Gochitashvili

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Atomic and Nuclear Physics

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Education:

University Diploma in Physics (Theoretical Physics), Ivane Javakhishvili Tbilisi State University

Ph.D, in Atomic Collision Physics, A.F.Ioffe Fiziko-Technical Institute(Sankt Petersburg)

Teaching Courses:

Applied Nuclear Physics

Ecological Modeling

Optical Physics Laboratory

Atomic and Nuclear Physics Laboratory

Subatomic Physics Laboratory

Electromagnetism Laboratory

Research Interests

- **Investigation of atomic particle collision processes by optical and collision spectroscopy methods.**
- **Nuclear spectroscopy methods.**

Selected Publications:

1. **R. A. Lomsadze, M. R. Gochitashvili, and R. Ya. Kezerashvili.**, “Precision measurements of cross-sections for inelastic processes in collisions of alkali metal ions with atoms of rare gases” **Int. J. Mod. Phys. B** **31**, 1650257 (2017).
2. **Malkhaz Gochitashvili, Ramaz Lomsadze, Gogita Papalashvili** .,”Metastable particles in ion sources” .,GESJ:Physics, No.2 , **57-63**, (2016).
3. **RA Lomsadze, MR Gochitashvili, RY Kezerashvili** ., “Inelastic processes in Na+-Ne, Na+-Ar, Ne+-Na, and Ar+-Na collisions in the energy range 0.5–14 keV” **Physical Review A** **92** (6), **062703**(2015).
4. **R Lomsadze, M Gochitashvili, N Mosulishvili, D Kuparashvili, ...**” Inelastic processes in low-energy Na+-Ar, K+-Ar and K+-He collisions” **Journal of Physics: Conference Series** **635** (2), 022007(2015).
5. **M Gochitashvili, R Lomsadze, O Taboridze, D Kuparashvil.**,” Dissociation, dissociative excitation and ionization processes for N₂ and O₂ molecules by electron bombardment”. **Journal of Physics: Conference Series** **635** (7), 072005(2015).

- 6. Malkhaz Gochitashvili**, Ramaz Lomsadze, David Kuparashvili, “PROCESSES OF EXCITATION AND DISSOCIATION AT COLLISIONS OF ELECTRONS AND IONS OF O^+ , K^+ WITH MOLECULES OF H_2 , N_2 , O_2 ” . **GESJ: Physics**, | No.2, 51-65, (2015).
- 7.** Ramaz Lomsadze, **Malkhaz Gochitashvili**, Roman Kezerashvili, Nugzar Mosulishvili, Bachana Lomsadze., “EFFECTIVE METHODS TO STUDY IONIZATION AND CHARGE - EXCHANGE PROCESSES IN $RB^+ + AR, XE$ COLLISIONS IN 0.7-10 KEV”. **GESJ: Physics**, 2014 | No.1(11), 39-44. <http://gesj.internet-academy.org.ge>
- 8.** RA Lomsadze, **MR Gochitashvili**, RY Kezerashvili, NO Mosulishvili, R Phaneuf.,”Inelastic processes in K^+ -He collisions in energy range 0.7–10 keV” , **Phys. Rev. A** **87**, 042710 (2013) - **APS**
- 9. M.R.Gochitashvili**, R.A.Lomsadze, N.O.Mosulishvili., “DISSOCIATIVE EXCITATION PROCESSES OF ATOMIC STATE $H(2P)$ IN THE $H_3^+ - He$ COLLISION” **GESJ: Physics**, 2012 | No.2(8) , 59-63. <http://gesj.internet-academy.org.ge>
- 10. MR Gochitashvili**, RY Kezerashvili, RA Lomsadze, “Excitation of Meinel and the first negative band system at the collision of electrons and protons with the nitrogen molecule“**Physical Review A** **82** (2), 022702,(2010).
- 11. Temur Jalagania**, **Yuri Tevzadze**, **Malkhaz Gochitashvili** “ANALYSIS OF DISTRIBUTION OF MULTIPLICITY OF CHARGED PARTICLES IN HADRON - NUCLEAR COLLISIONS WITHIN THE FRAMEWORK OF GLAUBER MODEL” **GESJ: Physics**, 2010 | No.2(4). 15-24, <http://gesj.internet-academy.org.ge>
- 12.** R Lomsadze, **M Gochitashvili**, N Mosulishvili., “Potassium ion impact excitation of helium atoms at moderate energies”, **Bulletin of the American Physical Society** **55** (2010).
- 13. MR Gochitashvili**, RV Kvizhinadze, RA Lomsadze, SV Bobashev., “Dissociative excitation due to collisions of electrons and helium ions with oxygen molecules”, **Technical Physics**, Vol. 52, No. 3, pp. 376–379,(2007).
- 14.** RA Lomsadze, **MR Gochitashvili**, RV Kvizhinadze, NO Mosulishvili, SV Bobashev., ” Ionization, charge exchange and excitation at collisions of sodium ions with argon” **Zhurnal Tekhnicheskoy Fiziki** **77** (11), 119-122,(2007)
- 15. M Gochitashvili**, R Lomsadze, R Kvizhinadze, T Mtvaralashvili, V Gachechiladze., “Excitation of L -Hydrogen Atomic Line in the Collisions of H_3^+ and H_2^+ Molecules with He, Ar, O_2 Targets”., **Bulletin of the Georgian National Academy of Sciences** **172** (3), 455-457, (2005).
- 16. M Gochitashvili**, I Noselidze, T Chighvinadze, R Lomsadze.,” Polarization measurements in $He^+ - N_2$ collisions”,**Georgian Electron. Sci. J.(GESF): Phys** 1, 151-161, 2004.
- 17. M Gochitashvili**, B Kikiani, R Kvizhinadze, R Lomsadze., “THE DISSOCIATIVE EXCITATION PROCESSES IN COLLISIONS OF ELECTRONS AND HELIUM IONS WITH OXYGEN MOLECULES”, **Georgian Electronic Scientific Journals: Physics** 1 (38),(2003).
- 18. M Gochitashvili**, B Kikiani, R Lomsadze., ”Formation of doubly charged potassium ions in $K^+ - He$ and $K^+ - Kr$ collisions in the 1–10 keV energy range” **Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms**, Volume, 205, 494-497 ,(2003).
- 19. M Gochitashvili**, B Kikiani, R Lomsadze, “Electron capture and dissociative excitation in slow collisions of Na^+ and K^+ ions with hydrogen and nitrogen molecules”, **Hyperfine Interactions** **132** (1), 513-516,(2001).

- 20. MR Gochitashvili, BI Kikiani.**, “Excitation of bands of the first negative system of the N_2^+ ion in collisions of N^+ and O^+ ions with N_2 molecules”, **Technical Physics, Tech. Phys. (1999) 44: 367.**
- 21. MR Gochitashvili, BI Kikiani, RA Lomsadze.**,” Measurements of the Absolute Cross Sections of Inelastic Processes for Slow Atomic Collisions”, **physics.nist.gov (1998).**
- 22. MR Gochitashvili, NR Jaliashvili, RV Kvizhinadze, BI Kikiani**
“Ultraviolet emission in dissociative excitation of N_2 by He^+ impact”
Journal of Physics B: Atomic, Molecular and Optical Physics 28 (12), 2453, (1995)
- 23. MR Gochitashvili, RV Kvizhinadze, NR Dzhalishvili, BI Kikiani.**, “Measurement of the absolute emission cross sections for spectral lines of K^+ ions colliding with He atoms”, Soviet Physics - Technical Physics; v. 37(10); p. 985-988,(1992).
- 24. P J. Eenshuistra, M Gochitashvili, R Becker, AW Kleyn, and HJ Hopman.**,” Negative hydrogen ion densities and drift velocities in a multicusp ion source “,**Journal of Applied Physics 67, 85 (1990);**
- 25. BI Kikiani, RA Lomsadze, NO Mosulishvili, MR Gochitashvili, VM Lavrov.**, “Ionization and charge exchange in Li^+-Ar, Ne, He collisions in the 0.5-7.0 keV energy range”, Zhurnal Eksperimental'noj i Teoreticheskoy Fiziki 98 (1), 95-104,(1990).
- 26. BI Kikiani, RA Lomsadze, MR Gochitashvili, NO Mosulishvili, VM Lavrov.**, ”
Ionization, charge exchange and stripping in K^+-He, Ne collisions in the 0, 7-7, 0 keV ion energy region”, Zhurnal Eksperimental'noj i Teoreticheskoy Fiziki; v. 91(9); p. 792-803,(1986).
- 27. Kikiani, B.I. ; Lomsadze, R.A. ; Mosulishvili, N.O. ; Gochitashvili, M.R. ; Saliya, Z.E. ; Lavrov, V.M.** “Ionization and charge exchange in K^+-Ar, Kr, Xe collisions for ion energies 0. 5--7. 0 keV”, **Sov. Phys. - Tech. Phys. (Zhurnal Tekhnicheskoy Fiziki 55 (8), 1612-1619,(1985)). (Engl. Transl.); (United States); Journal Volume: 30(8) ,(1985).**
- 28. B. I. Kikiani, M. MR Gochitashvili, RV Kvizhinadze, VA Ankudinov**
“Excitation processes in slow K^+-He, Ne, Ar, H_2, N_2 and Na^+-He collisions” **Zh. Eksp. Teor. Fiz, 87, 1906-1913 ,(1984)**
- 29. VM Lavrov, MR Gochitashvili, VA Ankudinov, BI Kikiani**
Vibrational excitation of N_2 ions in collisions of protons and electrons with N_2 molecules
Sov. Phys.. JETP 51 (2), 260-266,(1980).
- 30. VM Lavrov, MR Gochitashvili, VA Ankudinov, BI Kikiani;** “Role of intermediate states in the vibrational excitation of the $B^2 +u(v'= 0, 1, 2)$ state of the N_2^+ ion in collisions of ions with N_2 molecules”.**Soviet Physics-Technical Physics 25 (3), 400-401, (1980).**
- 31. MR Gochitashvili, VA Ankudinov, VM Lavrov, BI Kikiani** “Excitation processes in collisions of He^+ ions with N_2 molecules”, Zhurnal Tekhnicheskoy Fiziki, vol. 49, Nov. 1979, p. 2338-2343. **Soviet Physics Technical Physics, vol. 24, Nov., p. 1303-1306.(1979).**
- 32. BI Kikiani, ZE Saliya, MR Gochitashvili, TM Kereslidze IG Bagdasarova.**, “Electron capture in collisions between ions and inert gases at 200--4000 eV” **Sov. Phys.-Tech. Phys. Journal Volume: 23(11),(1978).**

Additional Information:

Prize named after Petre Melicishvili (1992).

Executive Secretary of Reviewed Electronic Scientific Journal (GESJ:Physics)