Curriculum Vitae

Cristian Bahrim
Professor of Physics (since September 2015)
Department of Physics, Lamar University
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EDUCATION

University of Paris, Orsay, France - Ph.D. in Physics — **1992 – 1997**
Dissertation: "Quantum treatment of intermultiplet transitions during Ne*($2p^5$ 3p) + He collisions at thermal energy. Polarization effects, interpretation of experiments."
Honors: Dissertation passed with the Distinction: "Congratulations of the jury"

University of Bucharest - M.A. in Physics — **1991**
Thesis: "Laser produced-plasma on Aluminum targets using radiation from a $C0_2$ laser"

University of Bucharest - B.A. in Physics — **1986 – 1991**
Areas of Concentration: Atomic, Molecular, Optical, and Laser Physics

ACADEMIC AWARDS

- **French Government Fellowship, University of Paris, Orsay, France** — **1992 – 1997**
- **Postdoctoral Fellowship, J.R. McDonald Lab., Kansas State University** — **1992 – 1997**
- **Three Outstanding McNair Mentor Awards at Lamar University** — **2005 – 2006**

TEACHING EXPERIENCE

Years teaching at college level – 17 years (K-State and Lamar U.) — **1998 – present**

Years teaching at Lamar University – 14 years. — **2001 – present**

Courses taught while at Lamar: — **2010 – present**

Undergraduate: College Physics, University Physics, Modern Physics, Optics, and several Special Topics (i.e Quantum Optics, Advanced Photonics, Electric Circuits, and Advanced Spectroscopy).
Graduate Level: Modern Optics, Experiments in Modern Optics, Quantum Optics, Master Thesis, and several Ph.D. level courses (i.e. Thermodynamic Fluctuations and Statistical Physics).

Associate Professor, Department of Physics, Lamar University — **2010-2015**
with joint-appointment in the Electrical Engineering Department [Teaching undergraduate, graduate, and doctoral courses; Developed lab activities (including writing two lab manuals for College Physics 2 and University Physics 2 courses). Leading research at UG, graduate and Ph.D. levels. Offering honors courses for University Physics and honors contracts for Modern Physics and Optics courses.]

Associate Professor, Department of Chemistry and Physics, Lamar University — **2008 – 2010**
with joint-appointment in the Electrical Engineering Department [Development of several courses, such as Modern Physics, University Physics, College Physics, Optics, and several special topics, such as Advanced Photonics, Advanced Spectroscopy, Quantum Optics, as well as general laboratory activities for Physics Program].

Assistant Professor, Department of Chemistry and Physics, Lamar University — **2004 – 2008**
with joint-appointment in the Electrical Engineering Department [I created from — 2005 – 2008

scratch a laboratory facility for the Optics course; Leading honors thesis (Joey Hunt).]

Visiting Assistant Professor, Department of Chemistry and Physics, Lamar U. **Fall 2002 – 2004**
[Development of courses and labs in physics.]

Adjunct Instructor, Department of Chemistry and Physics, Lamar U. **2001-Aug. 2002**
[Teaching physics labs and one course Modern Physics.]

Teaching Assistant in the Department of Physics at Kansas State University - **1999 – 2001**
Teaching recitations at the University Physics and College Physics levels.

Physics Instructor at Kansas State University - teaching recitations **1998**

Special education projects/affiliations undertaken:

- Development of on-line material.
- Peer-instruction as part of the STAIRSTEP sponsored program.
- I led more than 100 honors projects (contracts/thesis) while at Lamar.
- Faculty Collaborative for the College Career Readiness Initiative in Texas.
- Co-organizer of educational workshops. For example: (1) the workshops organized under CCRI in Nov. 2012 and Feb. 2013 with a team composed by high-school teachers, two-year faculty, and high-school administrators and (2) The 2013 STEP NSF Grantee Meeting, in March 2013, in Washington DC.
- Extensive work with Publishers (McGraw Hill, Pearson) for new textbooks.

Teaching awards and/or grants received:

- Co-PI along with Drs. Peggy Doerschuk P., Jennifer Daniel, Christopher Martin, and Joe Kruger, on the **NSF - STEP grant** (DUE 0757057) entitled "STudents Advancing through Involvement in Research Student Talent Expansion Program (STAIRSTEP)" ($1,000,000). **2009 – 2014**
- **Sigma Pi Sigma Research Award** ($2,000) with a group of UG physics students for a project titled "Solar and stellar measurements using accurate spectroscopic techniques," grant awarded by the Society of Physics Students. **2013**
- **Two research enhancement grants at Lamar University** (total $8500). **2005, 2007**

Sponsorship of student organizations:

- Advisor of the Society of Physics Students (since 2010) and
- Sigma Pi Sigma – Physics Honors Society (re-activated in 2014 after 17 years).

Contributions in teaching and instruction:

- Developed my own teaching website for instructional material;
- Co-author of two lab manuals used for laboratory instruction at Lamar;
- Developed two graduate courses: a theoretical course titled "Modern Optics" and an experimental-based course titled "Experiments in Modern Optics";
- Supervision of undergraduate and graduate research projects, including for master and doctoral degrees.

ACADEMIC ADMINISTRATIVE & RELATED HIGHER EDUCATION EXPERIENCE

Postdoctoral Research Associate, J.R. McDonald Lab., Department of Physics, Kansas State University — **1999 – 2001**

Research assistant on a Department of Energy sponsored project titled "Electron scattering on alkali-atoms. Photo-detachment of negative ions."

Institute of Atomic Physics, Bucharest-Magurele, Romania - Department of Lasers, Group of Atomic Collisions and Interactions — **1991 – 1998**

Research assistant with responsibilities in writing grant proposals, providing administrative support for our research group, supervise students, schedule and budget responsibility.

University Service while at Lamar:

- Chair of the Physics Department (2013 – 02/2014);
- Faculty senator (since 2011-2014);
- Chair of the Faculty Issues Committee of the Faculty Senate (2014);
- Member of the Tenure and Promotion Committees (2008-2012);
- Lamar Mirabeau Scholar Committee (2006-present);
- Member in the Advisory Board of the EE department (2005-present) and participated to the ABET accreditation (2006 and 2013);
- Member of Admissions Committee (2011);
- Merit Award and University Professor Committee (2010-2011 and 2013);
- Member of the Distinguished faculty lecturer committee (2012-2013);
- Chair of two Search Committees for hiring one tenure-track faculty and two instructors in 2009 and 2012;
- Search Committee member for hiring one instructor in 2008, two administrative associates 2013, 2014, one lab manager 2014;
- Marshall to Commencement Ceremonies.

Selected Academic Achievements with Students at Lamar:

- McNair mentor for seven scholars: Josh Trevino (2003), Joseph Young (2006), Joey Hunt (2006), Richard Wooten (2008), Robert Nick Lanning (2011), Carlos Caballero (2015) and Keeley Townley-Smith (2015);
- Mentor of the only two Goldwater Scholars at Lamar: Joseph Young (2006) and Keeley Townley-Smith (2014);
- Invited with Joey Hunt on the Capitol Hill in Washington D.C. to present a paper in front of policy makers (2006);
- Selected to represent Lamar at the UG Research Day at Capitol in Austin 2013 and 2015;
- Mentor of several EE students. Two students won the 1st place in 2006 (Joseph Young) and 2010 (Garret LaBove) in the Region 5 IEEE Competition.

Supervision of Graduate Students at Lamar:

- Co-supervisor (with Dr. Rafi Tadmor, from Chem E) of one Ph.D. candidate in Chem. Engr., Mr. Ken Pepper. Ph.D. degree awarded in December 2015;
- Advisor of the Ph.D. candidate Hiraku Matsukuma from Kyoto University, Japan (supervisor Prof. Masahiro Hasuo). Ph.D. degree awarded in March 2013;
- Master thesis supervisor for Don Duplan (graduation August 2013), Md. Mozammal Raju (graduation May 2014), and Md. Kairuzzaman (graduation December 2014) from the Phillip M. Drayer Department of Electrical Engineering.

PROFESIONAL DEVELOPMENT:

Membership:

- Member of the American Physical Society (since 1998);
- Science Faculty collaborative of the College Career Readiness Initiative (since 2010);
- Beta Xi Chapter of Phi Beta Delta, Honor Society for International Scholars (2013);
- American Association for the Advancement of Science (AAAS) (since early 2000s);
- Executive Board Member for the Texas section of the American Association of Physics Teachers (2014-2016)

Reviewer for many years to peer-reviewed journals such as the Journal of Physics of the European Institute of Physics; the American Journal of Physics; and the Chinese Optics Letters. Also, I was invited to serve as reviewer for several peer-reviewed international conferences, such as the International Conference on Biomedical Engineering and Biotechnology (iCBEB), the International Conference on Consumer Electronics (CECNet), the Conference on Electronics and Circuits (ECC), the Frontiers in Education (FIE), and several other IEEE conferences.

Professional recognitions:

Selected in the following publications:

- Marquis® "Who's Who in Science and Engineering" (2002-03, 2006-09, 2011-12);
- Marquis® "Who's Who in Education" (2006-2008);
- Marquis® "Who's Who in the World" (2006-2015);
- Marquis® "Who's Who in America" (2001-2015).

The Most Recent Invited Talks given at other meetings than those organized by the American Physical Society:

- **6th Southeast Symposium on Contemporary Engineering Topics (SSCET)** held in New Orleans (Sep. 11, 2015): Talk "Coupling two lasers on a dielectric surface: a new way to manipulate light in optoelectronic circuits".
- **2014 Laser and Optoelectronic Conference (LOC 2014)** organized in Beijing, China (Nov. 2014) – invited speaker, chair session and member of the Technical Committee Program. Talk "A New Optoelectronic Switch: The Dielectric of a Capacitor Illuminated with a Laser Radiation".
- **5th Southeast Symposium on Contemporary Engineering Topics (SSCET)** held in New Orleans (Sep. 19, 2014): Talk "Using the dielectric of a capacitor irradiated with a diode laser as a new optoelectronic switch".
- **BIT's 3rd Annual Conference and EXPO AnalytiX2014**, held in Dalian China, April 25-28, 2014. Talk "Trapping HeNe* excimers on Vibrational States Short Laser Pulses".
- **New Horizons in STEM Education Conference** held in San Antonio on Mar. 27-28, 2014. Talk "Hands-on experience: A better way to teach physics and attract majors".
- **43rd Winter Colloquium on the Physics of Quantum Electronics**, held at Snowbird, Utah, USA on January 6-10, 2013. Talk "Simultaneously slowing down two circularly polarized optical fields using EIT in a four level atomic system in the W scheme".
- **2013 STEP NSF Grantee Meeting** – Washington D.C., March 6-7. Presenter at the workshop session "Recruitment and Retention in Foundational Science Courses".

SIGNIFICANT PROFESSIONAL PUBLICATIONS

PEER-REVIEWED PUBLICATIONS between 2001 and 2014:

29. Bahrim, C., Raju, M., Khairuzzaman, M., Hsu, W., Lanning, R., and Duplan, D., "A New Optoelectronic Switch: The Dielectric of a Capacitor Illuminated with a Laser Radiation", **Journal of Applied Mathematics and Physics, 2,** pp. 1105-1112 (2014).

28. Doerschuk, P., Bahrim, C., Daniel, J., Kruger, J., Mann, J., and Martin, C., " An Award Winning Program for Increasing Participation in STEM," **Proceeding of the 44st ASEE/IEEE Frontiers in Education Conference,** October 2014, pp. 2270-2277. (A peer reviewed international conference paper).

27. Matsukuma H., Tanaka H., Takaie Y., Shikama T., Bahrim C., and Hasuo M., "Perturber Dependence of Disalignment Cross Sections of the Argon $2p_2$ Atoms Measured at Temperatures between 77 and 295 K", **Journal of Physical Society of Japan 81,** art#114302 (2012).

26. Bahrim C, and Nelson C., "Simultaneous electromagnetically induced transparency for two circularly polarized lasers coupled to the same linearly polarized laser in a four-level atomic system in the W scheme", **Physical Review A 83**, art#033804 (2011).

25. Pepper K., Tadmor R., and Bahrim C., "Interfacial tension and spreading coefficient of thin films: review and future directions", **Journal of Adhesion Science and Technology 25,** pp. 1379-1391 (2011).

24. Doerschuk, P., Bahrim, C., Daniel, J., Kruger, J., Mann, J., and Martin, C., "STAIRSTEP: An interdisciplinary program for retention and outreach in STEM," **Proceeding of the 41st ASEE/IEEE Frontiers in Education Conference,** October 2011, pp.F4H-1 to F4H-6, doi: 10.1109/FIE.2011.6142757 (A peer reviewed international conference paper).

23. Matsukuma H., Bahrim C., Shikama T., and Hasuo M., "Depolarization of emission lines from polarized neon 2p10 atoms due to radiation re-absorption in glow discharge plasma", **Euro-physics Conference Abstracts vol. 34A** (ISBN 2-914771-62-2) of 37th EPS Conference on Plasma Physics (Dublin, Ireland 2010) paper P4.408 (4 pages) (see https://tohoku.elsevierpure.com/en/publications/depolarization-of-emission-lines-from-polarized-neon-2psub10sub-a)

22. Khadilkar V., and Bahrim C, "Disorientation of Ne*($2p_i$;J =1) atoms due to He atom collisions in glow discharges at 10 K <T < 3000 K", **Journal of Physics B 43**, art# 235209 (2010).

21. Prigmore, J., Tcheslavski, G., and Bahrim, C., "An IGCT-based Electronic Circuit Breaker design for a 12.47kv distribution system," **Power and Energy Society General Meeting, 2010 IEEE ,** pp.1-5 (5 pages) doi: 10.1109/PES.2010.5588055 (http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5588055)

20. Bahrim C, and Khadilkar V., "Alignment relaxation of $Ne^*(2p_i$ [J=1]) atoms induced by collisions with $He(1s^2)$ atoms in discharges at temperatures from 10 to 3000 K", **Physical Review A 79**, art# 042715 (2009).

19. Bahrim C., and Hsu W.-T., "Precise measurement of the refractive indices for dielectrics using an improved Brewster angle method", **American Journal of Physics**, **77** (4), pp. 337-343 (2009).

18. Matsukuma H., Bahrim C., and Hasuo M., "Depolarization of excited Ne* ($2p^53p$; J=1) atoms due to He atom collisions", **Journal of Plasma and Fusion Research SERIES 8**, pp. 169-173 (2009)**.**

17. Hsu W.-T. and Bahrim C., "Accurate measurements of refractive indices for dielectrics in an undergraduate optics laboratory for science and engineering students", **European Journal of Physics 30,** pp. 1325-1336 (2009).

16. Doerschuk, P.; Bahrim, C.; Daniel, J.; Kruger, J.; Mann, J.; Martin, C., "Work in progress - STAIRSTEP - a program for expanding the student pipeline," **Proceeding of the 39th IEEE Frontiers in Education Conference, 2009, M3F1-2**, doi: 10.1109/FIE.2009.5350566.

15. Bahrim C., Khadilkar V., Matsukuma H., and Hasuo M., "Alignment relaxation of Ne* ($2p_i$ [J=1]) atoms in He-Ne* glow discharges", **Journal of Physics: Conference Series 194,** art# 092004 (2009).

14. Bahrim C, and Khadilkar V., "Depolarization of Ne*($2p_2$) atoms induced by isotropic collisions with $He(1s^2)$ atoms at temperatures between 10K and 1000K", **Journal of Physics B 41**, art# 035203 (2008).

13. Bahrim C, and Hunt J.F., "Infrared spectroscopy for the identification of modes of vibration in a temporary HeNe molecule", **Journal of Physics B 39**, pp. 4683-4700 (2006).

12. Seo M., Shimamura T., Hasuo M., Bahrim C., and Fujimoto T., "Disalignment rate coefficient of Ne excited atoms due to He atoms collisions at low T", **Journal of Physics B 36,** pp. 1885-1898 (2003).

11. Bahrim C., Thumm U., Khuskivadze A.A. and Fabrikant I.I., "Near-threshold photo-detachment of heavy alkali-metal anions.", **Physical Review A 66**, art# 052712 (2002).

10. Bahrim C., Fabrikant I.I. and Thumm U., "Boundary Conditions for the Pauli Equation: Application to Photodetachment of Cs^-.", **Physical Review Letters 87**, 123003 (2001); **88**, art# 109904 (2002).

9. Bahrim C. and Thumm U., "Angle-differential and momentum-transfer cross sections in e^- + Rb, Cs, and Fr collisions at low energies. $^3F^o$ shape resonances in Rb^-, Cs^- and Fr^- ions.", **Physical Review A 64**, art# 022716 (2001).

8. Bahrim C., Thumm U., and Fabrikant I.I., "$^3S^e$ and $^1S^o$ scattering lengths for e^- + Rb, Cs and Fr collisions.", **Journal of Physics B 34**, pp. L195-L201 (2001).

7. Bahrim C., Thumm U. and Fabrikant I.I., "Negative ion resonances in cross sections for slow electron- heavy alkali atom scattering.", **Physical Review A 63**, 042710 (2001).

6. Bahrim C., and Thumm U., "Low-lying $^3P^o$ and $^3S^e$ states of Rb^-, Cs^- and Fr^-", **Physical Review A 61**,

art# 022722 (2000).

5. Bahrim C., Hennecart D., Kucal H. and Masnou-Seeuws F., "Longitudinal alignment transfer between fine structure levels in Ne*($2p^5 3p$) + He collisions. Comparison between cell experiments and quantum calculations", **Journal of Physics B 32**, pp. 3091-3105 (1999).

4. Bahrim C., Kucal H. and Masnou-Seeuws F., "Absolute cross-sections and polarization effects in Ne($2p^5 3p$) – He collisions; a detailed comparison between theory and experiment", **Physical Review A 56** (2), pp. 1305-1319 (1997).

3. Bahrim C., Kucal H., Dulieu O. and Masnou-Seeuws F., "Quantal calculations for alignment relaxation in Ne*($2p^5 3p$) + He collisions", **Journal of Physics B 30**, pp. L797-L804 (1997).

2. Bahrim B., Bahrim C., Schneider I.F. and Mihailescu I.N., "TE-CO_2 laser-produced recombination plasma on cadmium samples; experiment and theoretical evaluations", **Laser Physics 4** (1), pp. 41-43 (1993).

1. Schneider I.F., Bahrim C., Berbece D., Mihailescu I., Vasilescu C., "Evaluation of the Population Densities of the Energy Levels in Aluminum (AlI, AlII) and Cadmium (CdII, CdIII) Plasmas at L.T.E.", **Revue Roumaine de Physique 36** (10), pp. 849-854 (1991).

Contributions to books:

1. Kritsonis W.A., Griffith K., Bahrim C., Marshall R., Herrington D., Hughes T., and Brown V., **Practical Applications of Educational Research and Basic Statistics** (ed. National Forum Journals, Houston, Texas), ISBN 0-9770013-4-2 (2007 and 2nd ed. 2009).

2. Bahrim C., **Innovations 2006 – World Innovations in Engineering Education and Research** (2006), Chapter 17, pp. 207-215, "A modern optics laboratory for undergraduate students" (ed. iNEER – International Network Engineering Education and Research – and Begell House Publishing).

3. Bahrim C., "Experimental-based learning in optics as a way to reach academic performances", **National Forum of Educational Administration and Supervision Journal 3** (2006-2007), pp. 100-121, (ed. National Forum Journals, Houston, Texas), ISSN 0888-8132.

Participation to peer-reviewed conferences while at Lamar University (2001-2014):

Abstracts published in the Bulletin of the American Physical Society (APS) as result of the participation to national or state APS conferences:

1. Raju Md, Khairuzaman Md, Lanning N., Hsu W-T., Bahrim C. "The interaction between lasers and dielectric surfaces assisted by an isotropic source of energy", Joint Spring 2014 Meeting of the Texas Sections of the American Physical Society, Abilene Christian University, TX - **Bulletin of the American Physical Society 59** (2) A1.00012 (2014) (http://meetings.aps.org/link/BAPS.2014.TSS.A1.12)

2. Bahrim C. and Doerschuk P., "The transformation of a low producing program into a very dynamic and successful Physics program", Joint Spring 2014 Meeting of the Texas Sections of the American Physical Society, Abilene Christian University, TX - **Bulletin of the American Physical Society 59** (2) S2.00005 (2014) (http://meetings.aps.org/link/BAPS.2014.TSS.S2.5)

3. Townley-Smith K., Vogler S., and Bahrim C. "Analysis of Atomic Spectra with applications to solar measurements", Joint Fall 2013 Meeting of the Texas Sections of the American Physical Society, University of Texas at Brownsville, TX - **Bulletin of the American Physical Society 58** (10) D1.00003 (2013) (http://meetings.aps.org/link/BAPS.2013.TSF.D1.3)

4. Bahrim C., and Lanning N. "Electron transmission through a graphite crystal", Joint Spring 2013 Meeting of the Texas Sections of the American Physical Society, Tarleton University, Stephenville, TX - **Bulletin of the American Physical Society 58** (3) G3.00001.

5. Vogler S., Townley-Smith K., and Bahrim C. "Analysis of Atomic Emission Spectra: a refined way to understand the photon concept", Joint Spring 2013 Meeting of the Texas Sections of the American Physical Society, Tarleton University, Stephenville, TX - **Bulletin of the American Physical Society 58** (3), K1.00008.

6. Lanning R., Bahrim C., Duplan D., and Hsu W.-T. "Measuring the curves of dispersion for dielectrics using a low-energy laser and a thermal source of radiation", 2012 APS March meeting, Boston, MA - **Bulletin of the American Physical Society 57** (1), B32.00013.

7. Bahrim C., and Khadilkar V.V., "Disalignment of the Ne($2p_{10}$ [J=1]) atoms induced by Helium atom collisions from 10K to 3000K", 2012 APS March meeting, Boston, MA - **Bulletin of the American Physical Society 57** (1), Z1.00007.

8. Lanning R., and Bahrim C., "Formation of wave packets in electron diffraction on crystals", 2012 APS March meeting, Boston, MA - **Bulletin of the American Physical Society 57** (1), K1.00036.

9. Neal B., Lanning N., and Bahrim C., "Crystallographic analysis using electron transmission by graphite", Joint Fall 2012 Meeting of the Texas Sections of the American Physical Society, Texas Tech Lubbock, TX - **Bulletin of the American Physical Society 57** (10), E9.00007.

10. Neal B., Lanning N., Ware W., Wigginton S., Lee Ch., and Bahrim C., "Mapping atomic arrays in crystals by interpreting electron diffraction patterns", Joint Spring 2012 Meeting of the Texas Sections of the American Physical Society, San Angelo, TX - **Bulletin of the American Physical Society 57** (2), E3.00005.

11. Hsu W.-T. and Bahrim C., "Precise measurements of the index of refraction at Brewster Angle", 2011 APS March meeting, Dallas, TX - **Bulletin of the American Physical Society 56** (1),Q33.00012.

12. Bahrim C., "STAIRSTEP – a research-oriented program for undergraduate students at Lamar University", 2011 APS March meeting, Dallas, TX - **Bulletin of the American Physical Society 56** (1), B10.00006.

13. Bahrim C., and Khadilkar V.V., "Temperature dependence of the depolarization rates of Ne*($2p_i$ [J=1]) atoms induced by He atom collisions", 2011 APS March meeting, Dallas, TX - **Bulletin of the American Physical Society 56** (1), Y45.00005.

14. Lanning R.N. and Bahrim C., "Measurements of chemical bonds using diffraction of electronic waves traveling through crystals", 2011 APS March meeting, Dallas, TX - **Bulletin of the American Physical Society 56** (1), C1.00201.

15. Pepper K., Bahrim C., and Tadmor R., "Introduction of a new thermodynamic property: "characteristic frequency", 2011 APS March meeting, Dallas, TX - **Bulletin of the American Physical Society 56** (1), D14.00013.

16. Bahrim C., "Analysis of two simultaneous EITs in a four-level atomic system in a W-scheme using a dressed-state representation", 2011 APS March meeting, Dallas, TX - **Bulletin of the American Physical Society 56** (1), K1.00118.

17. Lanning R.N. and Bahrim C., "Analysis of crystals using electron diffraction", Joint Fall 2011 Meeting of the Texas Sections of the American Physical Society, Texas A&M Commerce, TX - **Bulletin of the American Physical Society 56** (7), H1.00013.

18. Bahrim C., and Khadilkar V.V., Matsukuma H., and Hasuo M., "Temperature dependence of the depolarization rates of $Ne^*(2p_i[J=1])$ atoms induced by helium atom collisions", Joint Fall 2011 Meeting of the Texas Sections of the American Physical Society, Texas A&M Commerce, TX - **Bulletin of the American Physical Society 56** (7), N2.00003.

19. Bahrim C., and Khadilkar V.V., "Disorientation of the Ne(2pi) [J=1]) atoms due to He atom collisions in glow discharges at 10 K < T < 3000 K", 41st DAMOP meeting, Rice University, May 2010 **- Bulletin of the American Physical Society 55** (5), K6.00005.

20. Bahrim C., Khadilkar V.V., Matsukuma H., and Hasuo M., "Disalignment of Ne*(2p10 [J=1]) atoms due to He(1s2) atom collisions in glow discharges at 294 K", 41st DAMOP meeting, Rice University, May 2010 **- Bulletin of the American Physical Society 55** (5), M1.00172.

21. Bahrim C., "Simultaneous EIT of two circularly polarized optical fields driven by a linearly polarized optical field in a W-system", 41st DAMOP meeting, Rice University, May 2010 **- Bulletin of the American Physical Society 55** (5), M1.00012.

22. Bahrim C., and Lanning N., "Applications of the diffraction and interference of light and electronic waves", Joint Fall 2010 Meeting of the Texas Sections of the American Physical Society - **Bulletin of the American Physical Society 55** (11), FP1.00055.

23. Khadilkar V., Matsukuma H., Hasuo M., and Bahrim C.,"Alignment relaxation of Ne* ($2p_i$ [J=1]) atoms due to collisions with $He(1s^2)$", 2008 Gaseous Electronics Conference, Dallas, TX - **Bulletin of the American Physical Society 53** (10), FTP1.00108.

24. Bahrim C, and Khadilkar V., "Depolarization of Ne*($2p_i$ [J=1]) atoms induced by collisions with He($1s^2$) atoms at 10K < T < 1000K", 2008 APS March meeting, New Orleans, LA **- Bulletin of the American Physical Society 53** (2), B14 9.

25. Bahrim C, and Hunt J.F., "Analysis of the nuclear motion in a HeNe* transient molecule", 2008 APS March meeting, New Orleans, LA **- Bulletin of the American Physical Society, 53** (2), R1 162.

26. Bahrim C, and Nelson C., "Electromagnetically induced transparency (EIT) in a four-level atomic system", 2008 APS March meeting, New Orleans, LA **- Bulletin of the American Physical Society 53** (2), W14 3.

27. Bahrim C.,and Khadilkar V., "Alignment relaxation and disorientation of Ne*($2p_i$) atoms induced by collisions with He($1s^2$)", 59th Gaseous Electronics Conference, Columbus, OH - **Bulletin of the American Physical Society 51** (5), 59 (2006).

28. Bahrim C, and Hunt J.,"Identification of modes of vibration in a $HeNe^*$ temporary molecule and interference effects in slow He-Ne collisions", 59th Gaseous Electronics Conference, Columbus, OH - **Bulletin of the American Physical Society 51** (5), 73 (2006).

29. Thumm U., Bahrim C., and Fabrikant I.I., "Photodetachment of Rb^-, Cs^- and Fr^-: A new boundary-corrected Pauli equation approach", 55th Gaseous Electronics Conference, Minneapolis, MN - **Bulletin of the American Physical Society 47** (7), GPT9 (2002).

30. Thumm U., Bahrim C., and Fabrikant I.I., "Resonances in low-energy electron scattering on atomic Rb, Cs, and Fr", 55th Gaseous Electronics Conference, Minneapolis, MN - **Bulletin of the American Physical Society 47** (7), GPT8 (2002).

31. Bahrim C., Fabrikant I.I and Thumm U., "Photodetachment of Rb^-, Cs^- and Fr^- within a new boundary-corrected Pauli equation approach", 2002 DAMOP, Williamsburg, VA **- Bulletin of the American Physical Society 47** (3), D6.004 (2002).

32. Bahrim C., Thumm U. and Fabrikant I.I., "Electron scattering by Rb, Cs, and Fr targets at low energies", 2002 DAMOP, Williamsburg, VA - **Bulletin of the American Physical Society 47** (3), D6.070 (2002).

Contributions to other conferences/workshops while at Lamar:

33. **As Faculty Collaborative for the College Career Readiness Initiative (CCRI)** in Texas, between 2010 and 2014 I have participated to 7 workshops giving talks and leading panels.

34. **2013 STEP NSF Grantee Meeting** – Washington D.C., March 6-7, 2013. Along with two colleagues from other universities, we led the panel "Recruitment and Retention in Foundational Science Courses".

35. **The 8th EU-Japan Joint Symposium on Plasma Processing (JSPP 2012)** - Osaka University, Jan. 16-18, 2012: "Measurement on Perturber Dependence of Disalignment of Excited Neon and Argon Atoms due to Rare-gas Atom Collisions" by Hiraku Matsukuma, Cristian Bahrim, Taiichi Shikama, and Masahiro Hasuo (please visit http://www.camt.eng.osaka-u.ac.jp/EU-JAPAN/)

36. **Gordon Research Conference on Atomic Physics** - Tilton, New Hampshire, 2007. "Depolarization of Ne*(2pi [J=1]) atoms induced by collisions with He at temperatures from 10 Kelvin to 2,000 Kelvin: Comparison between theory and experiment", by Bahrim C., and Khadilkar V.

37. **5th Asian International Seminar on Atomic and Molecular Physics: AISAMP5** – Kansai, Japan (2012) "Disalignment rate coefficient of neon excited atoms due to helium atom collisions at low T" by Seo M., Shimamura T., Furutani T., Hasuo M., Bahrim C., and Fujimoto T.

38. **2nd Conference on the Elementary Processes in Atomic Systems** - Gdansk, Poland, 2002. "Near-threshold photo-detach-ment of heavy alkali-metal anions", by Fabrikant I.I., Bahrim C., Khuskivadze A.A. and Thumm U.

39. **Fano Memorial Symposium, ITAMP, Cambridge -** Massachusetts, 2002. "Near-threshold photodetachment of heavy alkali-metal anions", by Fabrikant I.I., Bahrim C., Khuskivadze A.A. and Thumm U., Fabrikant I.I., Bahrim C., Khuskivadze A.A. and Thumm U.

Selected conference presentations with students :

40. **2nd Annual STEM Conference 2014, Lamar University** with Keeley Townley-Smith (physics/EE major)and Gillian Nave (Researcher at NIST) "Learning about the composition of stars and atomic structure through spectroscopy**".** This UG conference is organized by the Office of UG Research.

41. **117th Annual Meeting of the Texas Academy of Sciences,** Galveston (March 2014) with Vogler S. (physics/MA major) and Townley-Smith K. (physics/EE major) "Analysis of Lorenzian peaks in atomic absorption spectra and shapes of glowing objects from the polarization of light emitted".

42. The Year of the Solar System. 2014 Undergraduate Research Conference, The Woodlands, TX (March 2014) with Sara-jeanne Vogler (physics/MA major) "Don't Get Burned! Protection from ICME Related SEP Events in Interplanetary Space" This UG conference is sponsored by the NASA Science Mission Directorate and Lunar and Planetary Institute.

43. **Undergraduate Research Expo 2014!** (April 2014) with Keeley-Townley Smith (physics/EE major) "Emission and Absorption Spectroscopy and Polarimetry of Glowing Objects in Thermal Equilibrium". This UG conference is organized by the Office of UG Research.

44. **Undergraduate Research Expo 2014!** (April 2014) with Sara-jeanne Vogler (physics/MA major) "Detection, Warning, and Safety Procedures for ICME Related SEPs in Interplanetary Space". This UG conference is organized by the Office of UG Research.

45. **South Central Conference for Undergraduate Women in Physics**, **SCUWiP2013,** Jan 2013 **–** at the University of Texas at Austin with Sara-jeanne Vogler (physics/MA major) **"**Analysis of atomic emission spectra: a refined way to understand the photon concept" Sara-jeanne Vogler and Cristian Bahrim.

46. **48th Annual Conference of the National Collegiate Honors Council**, in New Orleans, LA, Nov. 6-10, 2013. "Fuel cells and Electric Motors" (Poster 166-7) with Jordan King (ChemE major) and Hoa "David" Tsan (ME major).

47. **2013 Texas STEM Conference, Lamar Univeristy** (Oct. 5, 2013) with Nick Lanning (physics graduate at LSU) "Electron Diffraction by Graphite".

48. **2013 Texas STEM Conference, Lamar** (Oct. 5, 2013) with Sara-jeanne Vogler (physics/MA major) and Keeley-Townley Smith (physics/EE major) "Understanding and manipulating Photons".

49. **Texas Undergraduate Research Day at the Capitol in Austin** (April 2013) with Sara-jeanne Vogler (physics/MA major). Paper presented "Analysis of Atomic Emission Spectra with Applications in the Study of our Universe". Poster 10. This conference is organized by the Council of Public University Presidents and Chancellors.

50. **Quadrennial Physics Congress**, Orlando, FL (Nov. 2012) with Neal B. (physics major), Lanning R.N. (physics/MA major), Castro J. (physics/EE major), Jacob J. (physics/ME major) "The Analysis of Crystals with Electronic Waves".

51. **115th Annual Meeting of the Texas Academy of Sciences**, Sull Ross University Alpine (March 2012) with Ware W. (physics/EE major), Lanning N. (physics/MA major), Wigginton S. (physics/EE major), Lee Ch. (physics/EE major) "Analysis of electron diffraction in crystallography".

52. **114th Annual Meeting of the Texas Academy of Sciences**, St. Edward's University Austin (March 2011) with Ware W. (physics/EE major), Lanning N. (physics/MA major), St. John B. (physics/EE major) "Distribution of energy within interference patterns".

53. **113th Annual Meeting of the Texas Academy of Science**, Tarleton State University, Stephenville, TX (March 2010) with Lanning N. (physics/MA major), Bullock W. (physics/EE major), Lee C. (physics/EE major), Holman R. (physics/MA major) "Diffraction of electronic wave packets by crystals".

54. **2009 Sigma Xi International Conference for Undergraduate Research**, Nov.12-15, Houston, TX, with Robert Nicholas Lanning (physics/MA major), Joel Toutloff (physics major) and Christopher Lee (physics/EE major). We presented the poster "Interference and diffraction of light and matter waves".

55. **8th McNair Research Conference in University of Maryland** (March 2007) with **Richard Wooten** (physics

major) "Light-matter interaction".

56. **2006 Posters on the Hill** organized by the **Council of Undergraduate Research** on the Capitol Hill, Washington D.C., (2006), Books of Abstracts, pp. 30 with Hunt J.F (physics/MA major) "In search of a new molecule formed by rare gas atoms".

57. **109th Conference of Texas Academy of Science** (Beaumont, Texas, 2006), pp. CJ89 with Young J. (physics/EE major) **"**Spectroscopic analysis of atomic emission spectra".

58. 109th Conference of Texas Academy of Science (Beaumont, Texas, 2006), pp. CJ86 with Hunt J.F. (physics/MA major) "Quantum phenomena in atomic collisions between Neon and Helium atoms"**.**

59. **109th Conference of Texas Academy of Science** (Beaumont, Texas, 2006), pp. CJ87 with Seaman J., "Stellar Evolution: the origin and fate of the stars and our Universe".

60. **109th Conference of Texas Academy of Science** (Beaumont, Texas, 2006), pp. P57 with Khadilkar V. (CS graduate) **"**Disalignment and disorientation of Neon atoms induced by He-Ne collisions".

Conferences presentations prior to Lamar (1991-2001):

(1) **XXII ICPEAC, Santa Fe, New Mexico, 2001.**
"Feshbach resonances and virtual states in electron scattering by Rb, Cs, and Fr atoms at low-energies", Bahrim C., Thumm U., and Fabrikant I.I., Contributed Papers, page 133.

(2) **DAMOP 2000, Storrs, Connecticut, 2000**.
* "Low-lying ^3P_oshape resonance of Rb^-, Cs^- and Fr^- ions in electron scattering and photodetachment", Bahrim C., and Thumm U., published in the **Bulletin of the American Physical Society, vol. 45**, no.3, page 68.
* "Momentum-transfer, differential andspin-exchange cross sections intheelastic scattering oflow-energy electrons by heavy alkali-metal atoms", Bahrim C., Thumm U. and Fabrikant I.I., published in the **Bulletin of the American Physical Society, vol. 45**, no.3, page 68.

(3) **Energiereiche Atomare Stosse, EAS-21, Germany, 2000.**
"Near-threshold spectra of heavy-alkali-metal negative ions", Bahrim C. and Thumm U., Proceedings, page 159.

(4) **Gaseous Electronics Conference, Old Dominion, Norfolk, Virginia, 1999.**
"Low-lying resonances in Rb^-, Cs^- and Fr^-", Bahrim C., Thumm U. and Fabrikant I.I., published in the **Bulletin of the American Physical Society.**

(5) **APS 1999 Centennial Meeting, Atlanta, Georgia, 1999.**
"Resonances in e^- + heavy alkali-metal-atom collisions", Bahrim C. and Thumm U., published in the **Bulletin of the American Physical Society, vol. 44,** no.1, Part I, page 136.

(6) **Atomic Physics Conference, Plymouth, New Hampshire, 1999.**
"Negative ion resonances in cross sections for slow electron-heavy alkali atoms (Rb, Cs and Fr) scattering ", Thumm U. and Bahrim C, Proceedings.

(7) **XX ICPEAC, Vienna, Austria, 1997.**
* "Longitudinal alignment transfer between $2p_4$ and $2p_5$ atomic states of $Ne^*(2p^53p)$ for Ne* - He cell experiments", Kucal H., Bahrim C., Hennecart D., and Masnou-Seeuws F, Contributed Papers, FR 041.
* "Quantumcalculations forcollisionsof $Ne^*(2p^53p)$ withHe: intramultiplet mixingwithpolarization effects and alignment relaxation", Bahrim C., Kucal H., and Masnou-Seeuws F., Contributed Papers, TU 166.

(8) **29th Conference EGAS, Berlin, Germany, 1997.**
"Quantal calculations for Ne* + He collisions: polarized cross-sections and alignment transfer ", Bahrim C., Kucal H. and Masnou-Seeuws F, Proceedings.

(9) **4eme Colloque sur la Dynamique des Ions, des Atomes et des Molecules, Bourges, France, 1996**
"Traitement quantique des transitions intermultiplet pour les collisions $Ne(2p^53p)$ + He a des energies

thermiques et superthermiques", Bahrim C., Kucal H. and Masnou-Seeuws F, Proceedings.

(10) **4th Conference "Alain Boussy", Orsay, France, 1996.**
"Collision Ne* + He (quantum treatment)", Bahrim C., Kucal H. and Masnou-Seeuws F, Proceedings.

(11) **Conference "Physique en Herbe", Saclay, France, 1993.**
"Population and Alignment Transfer between the Levels of the $2p^5 3p$ Ne Configuration in Collision with Rare Gases", Bahrim C., Masnou-Seeuws F., Kucal H. and Dulieu O, Proceedings.

(12) **ICPP, Innsbruck, Austria, 1992.**
"CO_2 -TE Laser Produced Cadmium Plasma in Vacuum: Experiment and Kinetics", Apostol I., Bahrim B., Bahrim C. and Vasilescu C., Contributed Papers, Part III pp. 2049.

(13) **Conference "Physique en Herbe", Marseille, France, 1992.**
"Elementary Processes in Laser Produced Aluminum Plasma", Bahrim C. and Schneider I.F., Proceedings.

(14) **VUV 10 conference, Paris, France, 1992.**
"Analysis of the Kinetics of Aluminum and Cadmium Thermal Plasmas", Bahrim C. and Schneider I.F.,

(15) **ESCAMPIG, St. Petersburg, Russia, 1992.**
* "Study of Ionization Equilibrium in Low-Temperature Laser Produced Aluminum and Cadmium Plasma", Stancalie V., Bahrim B., Bahrim C. and Udrea S., Proceedings.

* "Spectral Analysis of CO_2 – TE Laser Induced Cadmium Plasma", Apostol I., Bahrim B., Bahrim C. and Stancalie V., Proceedings.

(16) **ICPIG XX, Pisa, Italy, 1991.**
"Low Temperature Laser Produced Al Plasma. Experiment and Kinetics", Stancalie V., Apostol I., Bahrim B., Bahrim C., Contributed Papers, pp.736.