

## EDUCATION

Dissertation: "Quantum treatment of intermultiplet transitions during  $\text{Ne}^*(2p^5 3p) + \text{He}$  collisions at thermal energy. Polarization effects, interpretation of experiments."

Honors: Dissertation passed with the Distinction: "Congratulations of the jury"

Thesis: "Laser produced-plasma on Aluminum targets using radiation from a  $\text{CO}_2$  laser"

Areas of Concentration: Atomic, Molecular, Optical, and Laser Physics

## ACADEMIC AWARDS

## TEACHING EXPERIENCE

Undergraduate: College Physics,

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

[Development of courses and labs in physics.]

[Teaching physics labs and one course Modern Physics.]

Teaching recitations at the University Physics and College Physics levels.

- teaching recitations

- Development of on-line material. Please see the 'Basic Courses' table at <http://sethi.lamar.edu/bahrim-cristian/cristian.html>.
- 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

ACADEMIC ADMINISTRATIVE & RELATED HIGHER EDUCATION EXPERIENCE

- 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,

Physical Society: given at other meetings than those organized by the American



held in New Orleans (Sep. 11, 2015): Talk "Coupling two lasers on

- \_\_\_ Doerschuk, P., Bahrim, C., Daniel, J., Kruger, J., Mann, J., and Martin, C., "STAIRSTEP: An interdisciplinary program for retention and outreach in STEM,"  
October 2011, pp.F4H-1 to F4H-6, doi: 10.1109/FIE.2011.6142757  
(A peer reviewed international conference paper).
- \_\_\_ 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",  
(ISBN 2-914771-62-2) of 37<sup>th</sup> EPS Conference on Plasma Physics (Dublin, Ireland 2010) paper P4.408 (4 pages)  
(see <http://ocs.ciemat.es/EPS2010PAP/pdf/P4.408.pdf>)
- \_\_\_ Khadiikar V., and Bahrim C., "Disorientation of Ne\*(2p<sub>i</sub>;J =1) atoms due to He atom collisions in glow discharges at 10 K <T < 3000 K",  
, art# 235209 (2010).
- \_\_\_ Prigmore, J., Tcheslavski, G., and Bahrim, C., "An IGCT-based Electronic Circuit Breaker design for a 12.47kv distribution system,"  
pp.1-5 (5 pages) doi:  
10.1109/PES.2010.5588055  
(<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5588055>)
- \_\_\_ Bahrim C., and Khadiikar V., "Alignment relaxation of Ne\*(2p<sub>i</sub> [J=1]) atoms induced by collisions with He(1s<sup>2</sup>) atoms in discharges at temperatures from 10 to 3000 K",  
, art# 042715 (2009).
- \_\_\_ Bahrim C., and Hsu W.-T., "Precise measurement of the refractive indices for dielectrics using an improved Brewster angle method",  
, (4), pp. 337-343 (2009).
- \_\_\_ Matsukuma H., Bahrim C., and Hasuo M., "Depolarization of excited Ne\* (2p<sup>5</sup>3p; J=1) atoms due to He atom collisions",  
, pp. 169-173 (2009)
- \_\_\_ Hsu W.-T. and Bahrim C., "Accurate measurements of refractive indices for dielectrics in an undergraduate optics laboratory for science and engineering students",  
pp. 1325-1336 (2009).
- \_\_\_ Doerschuk, P.; Bahrim, C.; Daniel, J.; Kruger, J.; Mann, J.; Martin, C., "Work in progress - STAIRSTEP - a program for expanding the student pipeline,"  
2, doi: 10.1109/FIE.2009.5350566.
- Bahrim C., Khadiikar V., Matsukuma H., and Hasuo M., "Alignment relaxation of Ne\* (2p<sub>i</sub>

art# 022722 (2000).

— Bahrim C., Hennecart D., Kucal H. and Masnou-Seeuws F., "Longitudinal alignment transfer between fine structure levels in Ne\* ( $2p^5$ )





24. Bahrim C, and

40. 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. Galveston (March 2014) with Vogler S. (physics/MA major) and Townley-Smith K. (physics/EE major) "Analysis of Lorentzian peaks in atomic absorption spectra and shapes of glowing objects from the polarization of light emitted".
- \_\_\_\_ (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. (April 2014) with Keeley-Townley Smith (physics/EE major) "Emission and Absorption Spectroscopy and Polarimetry of Glowing Objects in

major) "Light-matter interaction".

56. organized

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

"Collision  $\text{Ne}^* + \text{He}$  (quantum treatment)", Bahrim C., Kucal H. and Masnou-Seeuws F, Proceedings.

"Population and Alignment Transfer between the Levels of the  $2p^53p$  Ne Configuration in Collision with Rare Gases", Bahrim C., Masnou-Seeuws F., Kucal H. and Dulieu O, Proceedings.

"CO<sub>2</sub> -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.

"Elementary Processes in Laser Produced Aluminum Plasma", Bahrim C. and Schneider I.F., Proceedings.