

Daniel J. Cruz Alonso

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CITIZENSHIP U.S.A.

ACADEMICS **M.S. in Physics** 08/12
TEXAS A&M UNIVERSITY, College Station, TX
Project: *Searching for SUSY decays of the Higgs boson in the Exclusive Photon + Missing Transverse Energy Final State at CDF*
Advisor: Prof. David Toback
Concentration: Experimental High-Energy Physics

B.S. in Physics 06/09
UNIVERSITY OF PUERTO RICO - MAYAGUEZ, Mayaguez, PR
Honors: Magna Cum Laude

POSITIONS HELD

| | |
|---|-----------------|
| - Graduate Research Assistant | 01/12 - Present |
| - Graduate Teaching Assistant | 08/09 - 12/11 |
| - UPRM Society of Physics Students Vice-President | 08/07 - 05/08 |
| - UPRM Society of Physics Students Member | 08/07 - 05/09 |

RESEARCH EXPERIENCE **CDF Collaboration** 01/12 - Present
Graduate Research Assistant

- Searches for Higgs boson and supersymmetry in the Photon + Missing Transverse Energy Final State. Performed signal-to-background statistical high-energy physics analysis on candidate particle-collision photon + missing transverse energy events (C++/ROOT). Helped write scientific documentation, both for internal use as well as journal publication. *Advisor: Prof. David Toback*

CMS Collaboration 09/10 - Present
Tier3 Site Administrator

- Co-administrator of T3-US-TAMU, Compact Muon Solenoid (CMS) Tier3 Site (computing cluster), part of Brazos, the high-throughput computing cluster at Texas A&M University. Duties included, but were not limited to: installing and testing CMS software for use by Texas A&M CMS physics students, for use in Brazos' CentOS operating system; running jobs to test the robustness of the system; monitor and debug for errors in cluster performance, such as job performance, data transfers, both at the command-line level as well as with CMS-provided web monitoring tools, and work with Brazos administrators to rectify such problems. *Advisor: Prof. David Toback*

Graduate Research Assistant 01/12 - 05/12

- Performed testing of silicon pixel detectors for the CMS collaboration, as well as technical drawings of special parts for the upgrade of laboratory equipment. *Advisors: Profs. David Toback and Ricardo Eusebi*

TEACHING EXPERIENCE

Graphic Designer 08/10 - Present

- Creation and update of figures for use in Prof. David Toback's textbook, *Big Bang, Black Holes, No Math*, across a variety of fields in physics, ranging from classical mechanics to relativistic physics.

eLearning Administrator 01/11 - 09/12

- Maintained and coordinated the *eLearning* web-based homework and quiz delivery mechanism for undergraduate Physics courses. Duties included: developing and updating new homework content for Physics courses (multiple-answer, calculated, true/false, etc.); providing real-time support, via e-mail, to students (typically around 200 per semester).

Graduate Teaching Assistant 08/09 - 12/11

- Taught recitation sections and led laboratory sections of PHYS 218 (Mechanics for Engineers), PHYS 208 (Electricity & Magnetism for Engineers), and ASTR/PHYS 119/109 (Cosmology for non-Science/non-Engineering Students). Typically 3 sections per semester (around 20 students per section).

UPRM SPS Demonstration Coordinator (informal) 08/07 - 05/09

- Led physics demonstrations aimed at elementary and high school students and teachers. Demonstrations were on-site at the Department of Physics or at city and out-of-city schools. Topics ranged from mechanics (i.e. conservation of momentum) to electricity & magnetism demonstrations.

AWARDS

- URA Visiting Scholar travel award for Fermilab (FNAL) New Perspectives Conference 06/12
- TAMU Dept. of Physics & Astronomy Scholarship 08/09 - 05/10
- UPRM SMART (STEM students) scholarship awarded for academic excellence (GPA) 08/06 - 05/08

CONFERENCES

- New Perspectives Conference at Fermilab (FNAL) 06/12
Title of talk: *Adding CMS Tier3 Computing to an Already Existing Cluster at Texas A&M University*

COMPUTER SKILLS

Languages & Software: C++, Python, UNIX shell scripting, MATLAB, ROOT, Mathematica, LaTeX, Microsoft Office, Adobe Photoshop, Adobe Fireworks, Adobe Dreamweaver, NVU/Kompozer (HTML editor), HTML, Blackboard/*eLearning*.
Operating Systems: Windows XP/Vista/7, Ubuntu Linux, other Linux variants.

LANGUAGE SKILLS

Bilingual - Spanish and English

REFERENCES

Available upon request