

# Ramona L. V. Perez

## School Address

Florida International University  
FIU Department of Physics, CP204  
11200 SW 8<sup>TH</sup> ST  
Miami, FL 33199

## Permanent Address

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## EDUCATION

<i>Doctor of Philosophy</i> †, Physics	Florida International University	2008 - 12/2014
<i>Bachelor of Science</i> , Physics	Florida International University	2003 - 2008

†Dissertation Title: A charged fusion product diagnostic for a spherical tokamak.

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## SKILLS

Experimental Physical Scientist with experience in diagnostic design, development, and validation in a collaborative fast-paced work environment.

Electrical Design	Cable block diagrams, data acquisition electronics system design (decreased cost of system cables by a factor of 20 saving \$9K), electrical design reviews
Equipment	Radiation detection electronics, high-speed digitizers, mini electron-beam evaporator, sonicator, vacuum pumps, elemental analyzer, fluorometer, spectrophotometer, mass flow controller
General Research	Monte Carlo simulations, particle detection techniques, problem-solving, data acquisition automation, statistical analysis, ultra high vacuum (UHV) design and practices, software development for interfacing to electronics, instrument design, development, and validation
Mechanical Design	Machine drawings and instrument concept and design (successful design of \$8K+ UHV mechanical housing with parts manufactured by 4 different machining facilities using 3 different materials), mechanical design reviews
Operating Systems	Mac, Windows, Linux/Unix
Programming	Python, C, C++, Fortran 95, G (graphical language), shell scripting, basic IDL
Project Management	Planning, design, and execution (project timescale 2+ years), international and domestic collaborations, technical and general oral presentations, status reports, grant budgeting (\$25K+ equipment and expenses), international freight forwarding (\$40K worth of equipment), vendor paperwork, purchase orders, supervising and advising student research projects
Software	LaTeX, Solidworks, Vectorworks, AutoCAD, LabVIEW, GNU Make, MS Office, Virtual Network Computing, basic Matlab, basic Mathematica
Web/Video Conferencing	H.323 Polycom, ReadyTalk, Skype

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## RESEARCH EXPERIENCE

Plasma Physics*	<b>Graduate Research Assistant</b> FIU Physics Department, Dr. Werner Beoglin, Princeton Plasma Physics Laboratory, Dr. Douglass Darrow, Culham Centre for Fusion Energy, Dr. Scott Allan, Dr. Ken McClements Designing, and validating a new instrument to study the physics of plasma instabilities through charged fusion product detection in spherical tokamaks* <i>see publications and TWiki page <a href="http://phy.fiu.edu/twiki/bin/view/TWiki/MAST_Diagnostic">http://phy.fiu.edu/twiki/bin/view/TWiki/MAST_Diagnostic</a></i>	04/2010 - Present
Physics Education*	<b>Graduate Research Experience</b> FIU Physics Department, Researching FIU PhysTEC reform of introductory physics lab, conducting interviews (Institutional Review Board certified), transcribing interviews* <i>see publications</i>	04/2008 - 12/2008
Solid-State Physics*	<b>Undergraduate Research Experience</b> FIU Department of Physics, Dr. Wenzhi Li Carbon nanomaterial fabrication and system design, thin film deposition, and chemical vapor deposition synthesis of novel ruthenium dioxide nanorods* <i>see publications</i>	08/2005 - 08/2007
Space Physics*	<b>Undergraduate Research Experience</b> Florida Institute of Technology Physics and Space Sciences Department, Dr. Ramon Lopez Analyzing satellite data to support the proposed existence of field-aligned currents in the earth's polar cap during geomagnetic storm conditions* <i>see publications</i>	06/2006 - 07/2006
Biology Ecology	<b>Undergraduate Laboratory Technician</b> FIU Biology Department, Processing of plant and abiotic samples for elemental and spectrophotometric analysis and performing field work (Scientific SCUBA Certification) surveying and collecting samples in Florida Keys National Marine Sanctuary and Gulf of Mexico	02/2004 - 08/2005
Biology Ecology	<b>Undergraduate Laboratory Technician</b> FIU Biology Department, Dr. Jim Fourqurean Processing of plant and abiotic samples for elemental and spectrophotometric analysis and performing field work (Scientific SCUBA Certification) surveying and collecting samples in Florida Keys National Marine Sanctuary and Gulf of Mexico	02/2004 - 08/2005 02/2004 - 08/2005

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## OTHER EXPERIENCE

<b>Teaching</b>		
Graduate Teaching Assistant	FIU Department of Physics 9 Sections 2048L (Physics 1), Class size 30 students, Educationally reformed labs	08/2008 - 04/2010
Tutor, Learning Assistant	FIU Physics Learning Center, Center for High Energy Physics Research and Education Outreach, Tutoring and Teaching Assistant, Physics 1 & 2 with Calculus PHY 2048/2049, Class size 30 students, Educationally reformed courses (Modeling Instruction)	08/2005 - 04/2008

## Research Advising

Pierre Avila	Undergraduate Experimental Plasma Physics Research, FIU	01/2011 - Present
Omar Leon	Undergraduate Experimental Plasma Physics Research, FIU	01/2012 - Present
Carlos Lopez	Undergraduate Experimental Plasma Physics Research, FIU	01/2012 - Present
Adrianna Angulo	Undergraduate Experimental Plasma Physics Research, FIU	04/2013 - Present

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## PUBLICATIONS

Journal Articles	S. Neupane, G. Kaganas, <b>R. Valenzuela</b> , L. Kumari, X. W. Wang, W. Z. Li, Synthesis and characterization of ruthenium dioxide nanostructures, Journal of Materials Science, July 2011, Volume 46, Number 14, 4803-4811	07/2011
	Lopez, R. E., S. Hernandez, K. Hallman, <b>R. Valenzuela</b> , J. Seiler, P. Anderson, and M. Hairston (2007), Field-Aligned Currents in the Polar Cap during Saturation of the Polar Cap Potential, J. Atmos. Sol. Terr. Phys., doi:10.1016/j.jastp.2007.08.072	08/2007
Conference Proceedings	Boeglin WU, <b>Valenzuela Perez R</b> , Darrow DS. Concept of a charged fusion product diagnostic for NSTX. Rev. Sci. Instrum. 2010 Oct; 81(10):10D301, <a href="http://dx.doi.org/10.1063/1.3464262">http://dx.doi.org/10.1063/1.3464262</a>	10/2010
	Wells, L., <b>Valenzuela, R.</b> , Brewe, E., Kramer, L., O'Brien, G., & Zamolla, E., Impacts of the FIU PhysTEC reform of introductory physics lab, Phys. Ed. Res. Conf. Edmonton, Canada, 2008 AIP Conference Proceedings.	06/2008
Outreach	<b>Perez, Ramona L. V.</b> (2011). FIU physics department tea party. <i>Newsletter of the Committee on the Status of Women in Physics &amp; the Committee on Minorities of the American Physical Society</i> , 30(2), 5.	2011
	<b>Valenzuela, Ramona</b> (2008). SPS plans lecture series on women in physics. <i>Newsletter of the Committee on the Status of Women in Physics &amp; the Committee on Minorities of the American Physical Society</i> , 27(2), 7.	2008

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## PRESENTATIONS

Conferences	<b>Perez, R. V.</b> , S. Allen, W. U. Boeglin, M. Cecconello, K. G. McClements, D. S. Darrow, and the MAST team. First Results from a Charged Fusion Products Diagnostic at MAST, Poster session, APS DPP 55 <sup>th</sup> Annual Meeting. Denver, Colorado	11/2013
	Wells, L. and <b>Valenzuela, R.</b> Impacts of the FIU PhysTEC reform of introductory physics labs, Poster session, Phys. Ed. Res. Conf. Edmonton, Canada	07/2008
	Wells, L. and <b>Valenzuela, R.</b> Impacts of the FIU PhysTEC reform of introductory physics labs, Poster session, AAPT National Meeting. Edmonton, Canada	07/2008
	<b>Valenzuela, R.</b> Synthesis of Ruthenium Dioxide Nanorods, Talk, Ronald E. McNair Baccalaureate Program Research Symposium. Miami, FL	08/2007

Seminars	<i>Perez, R. V.</i> Initial Results from the Proton Detector, Friday Physics Seminar. Culham Centre for Fusion Energy, Culham Science Centre, Abingdon, Oxfordshire, England	09/2013
Design Reviews	<i>Perez, R. V.</i> Charged Fusion Product Diagnostic Electrical Design Review, Culham Centre for Fusion Energy, Culham Science Centre, Abingdon, Oxfordshire, England	05/2013
	Boeglin, W. and <i>Perez, R. V.</i> Charged Fusion Product Diagnostic Mechanical Design Review, Culham Centre for Fusion Energy, Culham Science Centre, Abingdon, Oxfordshire, England	09/2012
	Boeglin, W. and <i>Perez, R. V.</i> Charged Fusion Product Diagnostic Final Design Review, Princeton Plasma Physics Laboratory, Princeton, New Jersey	04/2011
	Boeglin, W. and <i>Perez, R. V.</i> Charged Fusion Product Diagnostic Preliminary Design Review, Princeton Plasma Physics Laboratory, Princeton, New Jersey	02/2011
Outreach	<i>Valenzuela, R.</i> and R. Galvez. Introduction to Nanotechnology, Quantum Leap Event, Miami Science Museum. Miami, FL	07/2008
	<i>Valenzuela, R.</i> The Role of SPS and CHEPREO in our FIU Physics Community, 2008 Zone 6 Regional Society of Physics Students Conference. Orlando, FL	03/2008

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## CONFERENCES AND WORKSHOPS

55 <sup>th</sup> APS Division of Plasma Physics Meeting	Denver, Colorado	11/2013
Physics Education Research Conference	Edmonton, Alberta, Canada	06/2008
American Association of Physics Teachers Meeting	Edmonton, Alberta, Canada	06/2008
2008 Zone 6 Regional Society of Physics Students Conference	Orlando, FL	03/2008
Florida International Grid School 2008 Workshop	Miami, FL	01/23/2008-01/25/2008
Compact Muon Solenoid (CMS) Workshop	São Paulo, Brazil	08/06/2007-08/18/2007
Ronald E. McNair Baccalaureate Program Research Symposium	Miami, FL	08/2007
Georgia-Tech FOCUS Conference	Atlanta, GA	01/20/2007
NSU 2 <sup>nd</sup> Annual Future Tech Conference	Norfolk, VA	11/2006
CISM Space Weather Weekend Workshop	Huntsville, AL	03/30/2006-04/02/2006
Physics Modeling Instruction Workshop	Miami, FL	06/2005

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## HONORS

FIU Graduate & Professional Student Committee Research Travel Grant	2013
Ronald E. McNair Baccalaureate Program Fellow	2006-present
Center for High Energy Physics Research and Education Outreach Fellow	2005-2008
South Florida Secondary Teacher Equity in Mathematics and Science Scholar	2005
Cristina Menendez Fellowship for Everglades Research	2004
Florida Department of Transportation Employee Dependent Scholarship	2004
Florida Bright Futures Scholarship	2003-2008
FIU Salutatorian Scholarship	2003-2005
FIU Presidential Scholarship	2003-2005
Advanced Placement Scholar	2003
Marsh Scholarship	2003
Salutatorian, Land O' Lakes High School, Tampa, FL	2003

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## PROFESSIONAL ACTIVITIES

American Physical Society, Student Member	2013
AVS Science and Technology, Student Member	2012-present
FIU Student Chapter of AVS, Founding Chair	2012-present
FIU Society of Physics Students, President	2006-2008
FIU Society of Physics Students, Member	2005-present

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## SERVICE

FIU Physics Graduate Program Review, Committee Member	2009 - 2010
2010 Zone 6 Regional Society of Physics Students Conference, Volunteer	2010
FIU Physics Department Colloquia Series, Volunteer	2008-2010
FIU Public Astronomy Star Parties, Volunteer	2008-2010
Miami Museum of Science Quantum Leap Event, Volunteer	2008
FIU Society of Physics Students Quantum Leap Event, Organizer, Volunteer	2008
CHEPREO Physics Department Open House, Volunteer	2006-2007

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## AVAILABILITY

Graduating	December 2014
Flexibility	Willing to relocate nationwide or internationally
Travel Experience	Domestic, international