

Report on 2nd SACNAS UPRM Annual Symposium:
Science and Technology, Innovation through Research.
Mayagüez, Puerto Rico, 2014.



Introduction:

The CoHemis-UPRM SACNAS Student Chapter celebrated its 2nd Annual Symposium on Thursday, April 24th and Friday, April 25th, 2014 in Mayagüez at the University of Puerto Rico-Mayagüez (UPRM). This symposium, which was organized by Carolina J. García-García, Chapter Vice-president, in collaboration with fellow chapter officers and members, brought together a diverse group of STEM (Science, Technology, Engineering, and Mathematics) students and professors from UPRM and a few other Higher Education Institutions from the Island to explore the research being performed on our institution. A total of 158 participants, mainly composed by undergraduate and graduate students, as well as faculty, attended the symposium.

The symposium Platinum Sponsor was the Chancellor's Office of the UPRM. The Bronze Sponsor of the symposium was the Marine Sciences Department of the UPRM, which also had an informative booth during the second day of the event. The symposium was celebrated in the Luis de Celis Building in UPRM.



Abstracts:

A total of 72 abstracts were submitted through the symposium's webpage: 23 in the Engineering, Mathematics, and Computation Category; 10 in the Geology and Physics Category; 33 in the Biology, Biotechnology, and Chemistry Category; and 6 in the Agricultural Sciences and Marine Sciences Category. The Evaluating Committee was composed of 25 UPRM faculty members from all the STEM fields. Due to space constrictions, a total of 52 (72.22%) abstracts were accepted: 17 (73.91%) in the Engineering, Mathematics, and Computation Category; 10 (100%) in the Geology and Physics Category; 19 (57.6%) in the Biology, Biotechnology, and Chemistry Category; and 6 (100%) in the Agricultural Sciences and Marine Sciences Category.

Event day 1 – Thursday, April 24th, 2014:

The symposium began with a continental breakfast followed by opening remarks from Carolina J. García-García; Héctor J. Esparra-Escalera, Chapter President; Dr. Nayda G. Santiago-Santiago, Chapter Advisor and Associate Professor of the Department of Electrical and Computer Engineering of UPRM; and Dr. Fernando Gilbes-Santaella; Director of CoHemis, Chapter Advisor, and Professor of the Department of Geology of UPRM. The program included a cadre of speakers from various departments of the UPRM, covering a diverse range of topics in the STEM fields.



The Keynote Sessions, moderated by Carolina J. García-García and other members of SACNAS UPRM, commenced with an outstanding stimulating presentation

from Dr. Juan C. Martínez-Cruzado, Professor of the Department of Biology of UPRM, on *“Puerto Rico Genomes: Migration, Admixture, and Population Medical Genetics.”*

Following was a coffee break and then the Poster Session I. In the Engineering, Mathematics, and Computation Category, 9 students presented their research posters to general attendees and judges, while 7 presented in the Geology and Physics Category.



After a brief break for a luncheon, the Keynote Sessions continued with a presentation from another local faculty member Dr. Richard S. Appeldoorn, from the Department of Marine Sciences, on the *“Opening unknown depths: Coral ecosystems at the edge of light.”* Following the second Keynote Session was a coffee break and the Oral Session I. In the Geology and Physics Category, 1 student presented his research, while 1 presented in the Agricultural Sciences and Marine Sciences Category.

The final event of the first day of the symposium was an Informative Session by Yaritza M. Santiago-Correa, Industrial Engineering graduate student, on JOUST: The Journal of Undergraduate Research Students.



Eleven (11) faculty members evaluated the poster and oral presentations during the first day. Also, 47 non-presenter students and non-evaluating faculty members attended the symposium during the first day. They represented the departments and programs of Electrical and Computer Engineering, Geology, Marine Sciences, Biology, Physics, Civil Engineering, Agricultural and Biosystems Engineering, Industrial Microbiology, Mathematical Sciences, Chemistry, Industrial Engineering, Business Administration, Agronomy, Nursing, Social Sciences, Chemical Engineering, and Industrial Biotechnology.

Event day 2 – Friday, April 25th, 2014:

The second day of the symposium began with a continental breakfast which was followed by the third of the Keynote Sessions entitled *“Puerto Rico & Goliath”*, an exciting presentation that metaphorically contrasted today’s Puerto Rico and globalization through mechanical engineering examples and several other underdog examples from Dr. David Dooner (UPRM).



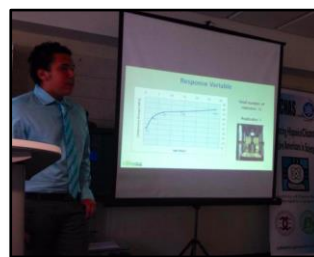
During a morning Oral Session, 4 students presented their research in the Biology, Biotechnology, and Chemistry Category to attendees and judges. After a brief coffee break, the second Poster Session commenced with 14 students presenting in the Biology, Biotechnology, and Chemistry Category, and 4 in the Agricultural Sciences and Marine Sciences Category.

Following a luncheon were the oral presentations of 5 students in the Engineering, Mathematics, and Computation Category. During the latter part of the afternoon Dr. Yong-Jihn Kim (UPRM) gave a scientific session related to the superconductivity in MgB_2 wires and their application, as a pathway to next generation, in MRI technologies.



The symposium concluded with the Awards Ceremony followed by Concluding Remarks from Carolina J. García-García, Héctor J. Esparra-Escalera, Dr. Nayda G. Santiago-Santiago, and Dr. Fernando Gilbes-Santaella. The winners received a certificate and medal. They were:

Oral Presentation; Engineering, Mathematics, and Computation (tie): Gilbert E. Del Orbe-Almanzar from the Department of Civil Engineering: *“Effect of Fly Ash and Nano-silica on Concrete Compressive Strength at Early Age.”*



Oral Presentation; Engineering, Mathematics, and Computation (tie): Xavier A. Terán-Batista from the Department of Mathematical Sciences: *“Towards a Solution of the Transient Problem for Boolean Monomial Dynamical Systems.”*



Poster Presentation; Engineering, Mathematics, and Computation: Diana Sánchez-Partida from the Department of Logistics and DCS, Universidad Popular Autónoma del Estado de Puebla: *“Integer Linear Programming model for a timetable university considering professor’s time windows and consecutive periods.”*

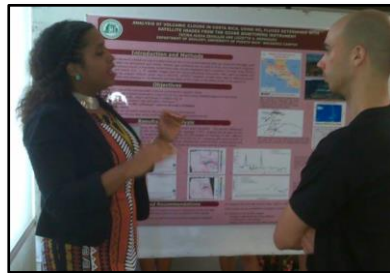


Oral Presentation; Geology and Physics: Milton A. Martínez-Julca from the Department of Physics: *“Ti-doped ZnO Nanoparticles as Novel Direct Generator of Singlet Oxygen for Photodynamic Therapy Applications.”*



Poster Presentation; Geology and Physics (tie): Fátima A.

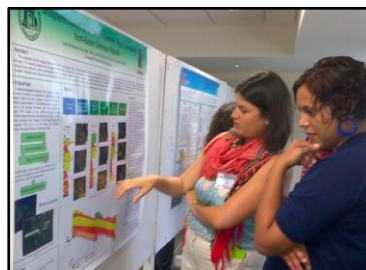
Zevallos from the Department of Geology: *"Analysis of volcanic clouds in Costa Rica, using SO₂ fluxes determined with satellite images from the Ozone Monitoring Instrument."*



Poster Presentation; Geology and Physics (tie): Sarymar

Barreto-Saavedra from the Department of Geology:

"Stratigraphic Analysis of the Yanigua Formation, Region Los Haitises, North-Eastern Dominican Republic."



Oral Presentation; Biology, Biotechnology, and Chemistry:

Andrés Moya-Rodríguez from the Department of Chemistry:

"Purification of New Lysine Tag Fused Heme protein from Lucina pectinata Designed for Covalent Immobilization."



Poster Presentation; Biology, Biotechnology, and Chemistry

(tie): Frank X. Ferrer-González from the Department of Biology:

"Accessing Antibiotic Resistant Clones in Puerto Rican Soils through Metagenomics."



Poster Presentation; Biology, Biotechnology, and Chemistry

(tie): Nelson G. Castillo-Rivera from the Department of Biology:

"Physical Functioning and Grip Strength Influences on Bone Health."



Oral Presentation; Agricultural Sciences and Marine Sciences:

Rolf Vieten from the Department of Marine Sciences:

“Caribbean Stalagmites as Climate Archives.”



Poster Presentation; Agricultural Sciences and Marine Sciences:

Lisa M. Dillon-Fuentes from the Department of Animal Sciences and Livestock Industries: *“Evaluación de ovocitos madurados in vitro provenientes de ganado lechero y de carne bajo condiciones de esters térmico en Puerto Rico.”*



Twelve (12) faculty members evaluated the poster and oral presentations during the second day. Additionally, 41 non-presenter students and non-evaluating faculty members attended the symposium during the second day. They represented the departments and programs of Industrial Engineering, Civil Engineering, Psychology, Industrial Microbiology, Electrical and Computer Engineering, Physics, Geology, Mechanical Engineering, Mathematical Sciences, Chemistry, Library Sciences, Animal Sciences and Livestock Industries, Industrial Biotechnology, and Marine Sciences.

[Click here](#) to download the Program & Abstract Booklet.

Conclusions:

The symposium's Program and Abstracts Booklet was distributed electronically and through the event's webpage to maintain SACNAS UPRM-CoHemis' eco-friendly values. For more information about the symposium you could access the following link: sacnasuprmcyt.weebly.com. Post-symposium evaluations collected from participants were overwhelmingly positive and we look forward to next year's symposium.

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24 & 25 de abril de 2014