## BREAKING THE SOUND BARRIER: CUBANS AT CAM19

## ROMPIENDO LA BARRERA DEL SONIDO: CUBANOS EN EL CAM19

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Recibido 10/11/2019; Aceptado 20/11/2019

In august 2017, a group of 14 cuban postgraduate students participated for the first time in the Canadian American Mexican Graduate Students Physics Conference (CAM), in Washington, D.C. As Maria Sanchez Colina, president of the Cuban Physical Society (SCF) and head of the delegation said at that time, the Cuban participation in CAM 2017 showed that Science is a powerful force allowing women and men to transcend frontiers, walls and prejudices of any kind [1]. The participation of a Cuban delegation was appreciated both by the Cuban students and by the CAM regular organizers. Immediate positive feedback from that experience was the organization of the First Cuban Physics Meeting for Graduate Students, that took place in La Habana in 2018, and the possibility of a new invitation for Cuban students to participate in further CAM editions.

The American Physical Society (APS), who supported the Cuban participation in Washington, generously made once again the offer to support the expenses of registration and travel for the Cuban participation in the 2019 edition of CAM in Sudbury, Ontario, Canada.



Figure 1. Cuban posgraduate students dressed properly to walk through a nickel mine where a laboratory on dark matter and neutrino physics is located. Picture taken at the entrance of SNOLAB, 2km underground. From left to right: Joeluis Cerutti Torres (UH), Michael Hernandez Bertrán (UH) and Jorge Alberto Cardenas (UCLV).

However, this time an unexpected barrier appeared: health problems suffered by some US and Canada diplomats in Havana (surprisingly associated to "sonic attacks" at the

time they were made public around August 2017<sup>1</sup>), had caused a drastic decrease in the diplomatic personnel of the corresponding embassies in Havana. Then, Cubans had to travel to a third country to get visas in order to travel to the US and Canada. As a result, a very small representation of Cuban graduate students was able to participate. Three students, two from the Physics Faculty, University of Havana, and one from the Central University of Las Villas were able to physically take part in the event in Canada, and one more student, from ICIMAF, was able to virtually participate. In addition, a professor from CNEURO traveled as an invited plenary speaker.

We must underline the constant care of both the APS and the Organizing Committee, as well as the SCF, into solving every problem and make possible that Cuba could be present in Sudbury. Once again, science proved to be an efficient tool braking political and conventional barriers into fruitful cooperation.

Parallel sessions for oral presentations of the students and a poster session occupied the most part of the CAM2019 schedule. Two Cuban students presented their research results in the poster sessions and the other two presented oral talks, one of them via Skype. A Cuban student was also invited to be part of the judging team for the poster competition that took place in the event. The poster session had the particularity that it was preceded by a Poster Jam: a mini-session in which every poster presenter had 60 seconds to "sel" her/his poster –for the Cuban poster presenters it was a challenging, but interesting experience.

Besides the opportunity to share their research projects, participants were able to learn about recent research topics, with the plenary talks given by professors of the four participating countries. The Cuban professor Eduardo Martinez Montes gave a talk about Neuroscience. Also, the last plenary talk, talking about job opportunities for PhD in physics, gave the students the opportunity to start thinking about post-doctoral life.

Besides academic activities, the agenda included three discussion panels and two interactive workshops. The first two panels dealt mainly with the vision that students have of themselves as PhD students and their future: Career Planning and Funding in Science. The third one was about

<sup>&</sup>lt;sup>1</sup>See "Havana Syndrome" in Wilkipedia https://en.m.wikipedia.org/wiki/Havana\_syndrome

Publications. As for the workshops, the first one was about how to write effective Curriculum Vitae, and the second one about gender and racial integration in science.



Figure 2. Cuban students and Prof. Martinez Montes (CNEURO), inside the facilities of SNOLAB, in Sudbury, Ontario.

It is impossible not to mention a very interesting activity organized by CAM2019 –arguably the most popular among all participants. Two kilometers under Sudbury, within an active nickel mine in Vale Creighton, is located a science laboratory specialized in neutrino and dark matter physics: SNOLAB. The original Sudbury Neutrino

Observatory (SNO) experiment has ended but the facilities remained as a permanent laboratory that hosts today five more experiments, looking for neutrino characterization or dark matter detection, and at least four more are under construction or starting to run. The current director of SNOLAB, Arthur McDonald, was awarded the Nobel Prize in 2015, precisely for his research on neutrinos. The tour to SNOLAB was extremely interesting from a scientific perspective and also seemed like an adventure for all the participants.

I had the pleasure to be one of the students who was able to represent Cuban science among fellow master and doctoral students of the region. CAM2019 was an experience of collaboration, starting way before the Conference itself, and moreover during the days of scientific discussions. Almost everyone –from organizers and participants— were eager to meet us; the Cuban students. Most of them wanted to talk about science, society and politics, but some of them were also looking for a partner to dance! I must confess that critical thinking, science and research, as well as political and social positions of Cuban students were better represented than our ability to dance.

## **REFERENCES**

[1] M. Sánchez-Colina, Rev. Cubana. Fis. 34, 98 (2017).

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