

Solar-powered Mexican-French cooperation

Prof. Dr. Hector Alfredo Calderon Benavides of the department of Materials Science at the National Polytechnic Institute (IPN) in Mexico City, Mexico visited the MINATEC research centre of the Centre for Atomic Energy in Grenoble, France, earlier this year.

What have you worked on during your visit?

The plan consisted basically in two activities:

- Prepare a proposal for FONCICYT (collaboration between Mexico and the European Union). The goal was satisfied satisfactorily since a proposal on fabrication of nanostructured solar cells was completed in September 2008.
- Visit all the labs of MINATEC in order to prepare future collaboration between IPN (National Polytechnic Institute, Mexico) and CEA-LETI in MINATEC France.

Why is that important for your research and for progress in nanotechnology?

One of research lines is the application of nanostructures and the proposal to FONCICYT involves this as an objective. Nanotechnology is an evolving field and this application on solar cells implies new knowledge and new methods to produce solar cells basically using materials abundant, less expensive and made more efficient via nanostructuration.

Why did you come to this European research centre to do this project?

MINATEC has scientists with the required expertise for me to advance more rapidly. Most likely I would have arrived to the realization of constructing solar cells by means of nanostructured by myself and with the interaction from home with other scientist. However, such a development took place much more rapidly as a result of direct and daily interaction with scientists in the same field and diverse expertise.

What are the results? How will you disseminate them?

The results are in the proposal for FONCICYT. However I am left with ready to use knowledge produced by an extensive literature research and the interaction with European colleagues. I will disseminate it through new internal projects, conferences and lectures at IPN. I will also write an article for a local magazine in Spanish dedicated to dissemination and disclosure of science. It should be published in the following 6 – 8 months.

Is this the first contact between both organizations or is your visit part of existing collaboration?

This was my first visit. There was no other earlier contact between IPN and CEA MINATEC.

What are the plans for future collaboration?

In case the proposal to FONCICYT is accepted our direct collaboration on the Fabrication of Nanostructured Solar Cells will take place for the following two years. If the proposal is rejected then we will interact to participate in other calls for proposals. Our interaction this time has had the objective of long term collaboration but at the moment it is centred on the FONCICYT proposal, with no doubt, it will develop otherwise if the proposal is rejected.

Do you intend to apply for funding in the EU 7th Framework Programme for RTD?

Yes, together with scientist at MINATEC, CEA LETI.

How may your project in the long term benefit the development of your country or Latin America in general?

Energy from solar cells is clean, renewable and potentially cheaper. Fabrication of better and more inexpensive solar cells will benefit everyone in the world. As for Mexico we expect to set the basis for a new industry since at the moment fabrication of solar cells is not performed locally.

What are your plans for disseminating the results of your visit outside the research community in your country?

I will participate in international scientific meetings.

Identification:

Prof. Dr. Hector Alfredo Calderon Benavides, hcalder@esfm.ipn.mx

Home organization: IPN, ESFM, Dept Materials Science, Mexico City, Mexico, www.esfm.ipn.mx

Host organization: CEA, MINATEC, Grenoble, France, www.minatec.com.