Mexican and German researchers strengthen plastic with nanotubes thanks to EU

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Prof. Dr. Francis Aviles Cetina, of the Scientific Research Centre of Yucatan (CICY) in Mexico visited the Fraunhofer Institute for Materials and Beam Technology (IWS) in Dresden, Germany as part of the NanoforumEULA project, in the first quarter of 2008. He worked on improving Carbon nanotube (CNT) polymer composites. Ineke Malsch asked him what he has been doing and how this exchange fits into longer term nanotechnology cooperation between Europe and Latin America.

Why is your visit to the Fraunhofer institute important for your research and for progress in nanotechnology?
CNTs are extraordinary novel materials of nanometric dimensions that present amazing mechanical and electrical properties (among many others). If we are able to transfer those amazing properties to polymeric matrices (plastics) we would be able to design and fabricate large scale materials and structural components with excellent properties and multifunctional abilities.
Why did you come to this European research centre to do this project?
Fraunhofer IWS, through Dr. A. Leson, showed a great interest in this project, when I first contacted them. They are working on large scale production of CNTs, so it looks like a perfect match.
What are the results? How will you disseminate them?
We worked on functionalizing CNTs to make them more compatible to polymer matrices. Besides the great exchange of ideas and networking, we have some interesting technical results that may turn out in technical publications and/or conference presentations.

The EU funded NanoforumEULA projects aims at establishing lasting research relations between Latin American and European nanotechnology research organizations. For professor Aviles, the NanoforumEULA support enabled the first contact between the Scientific Research Centre of Yucatan and the Fraunhofer IWS institute.

What are the plans for future collaboration?
We have planned to continue the cooperation through Dr. Oliver Jost. The continued cooperation, however, greatly depends on possible funding opportunities between Mexico and the EU. Join research programs and exchange visits would be the path forward. We would try any funding opportunity my EU counterpart is willing to go for.

In the long term, the new contact established with European Union support should benefit the development of Mexico or Latin America in general. Professor Aviles has some ideas how this may come about:
The development of advanced composite materials is an interesting topic with relevant social aspect starting from the local point and extending to all Latin America. The generation of knowledge and "know-how" in manipulating materials at the nanometric scale to create advanced composite materials could help not only to create parts for local/rural housing and structural components for the local (boat) industry, but also to develop our own technology towards nanomaterials. Mexico and, in general, Latin America is known for its rich natural resources. In the future, if we acquire the tools and knowledge to handle nanotechnology, we may be able to synthesize our own reinforcements for polymer composites extracting them from what we got available in our land. They could be based not only on carbon and clay (which is quite abundant in Mexico) but also in any other natural element suitable for that purpose. All these aspects could turn, in the long term, in home-made commercial products fabricated with home-synthesized materials using our own technology, which I believe is the way for Latin America to grow.

Finally, the European Union stresses the importance of making the results of the projects they support known to a wider audience. What are your plans for disseminating the results of your visit outside the research community in your country?
Acknowledge support of the EU in technical publications and publishing an interview in national newspapers.

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About NANOFORUMEULA
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