

## **Research - LANCER : Double Header for Basse-Normandie !**

At a time when political Europe is still seeking its path, Basse-Normandie public research is tackling the adventure in its own way and becoming increasingly involved in Europe for Research, specifically under the FPRTD (Framework Program for Research and Technological Development). Indeed at the end of the summer, the European MaCoMuFi project coordinated by Wilfrid Prellier, a thin film specialist working at the Caen-based CRISMAT was launched. Now, another European program called LANCER (Light Amplifiers with NanoClusters and Erbium) coordinated by another Caen researcher, Richard Rizk who heads SIFCOM (Interface Structures and Thin Film Functionality) has gotten off the ground. This double header is a reminder to anyone who might have forgotten that Basse-Normandie is an enterprising creative region.

LANCER, which was developed under the IST (Information Society & Technologies) program of the Sixth FPRTD, follows SINERGIA, an earlier project that SIFCOM was actively involved in. "The results we achieved with SINERGIA opened the eyes of some researchers who were skeptical about the future of the research," pointed out the Richard Rizk who heads SIFCOM (CNRS-ENSICAEN 6176 Joint Research Unit), one of the few laboratories in France working in the emerging field of silicon-based photonics. Across the Ocean, the results have made the Americans realize just how important the topic is and they have rolled out MURI (Multidisciplinary Research Initiative), a program competing with LANCER. The project is headed by MIT working with researchers from Caltech, Stanford, Cornell, Lehigh, Rochester, among others. The project, scheduled to last five years instead of the initially planned three, has seen its budget recently go from 3 to 6 million dollars, proof of the huge stakes involved in this topic.

### ***Neck in neck with the Americans***

Of course, the LANCER project does not have the same financial resources as its US competitor. However, Richard Rizk is confident that the European researchers will meet the challenge they have set, i.e., designing two components, a low-cost, silicon-technology compatible, compact planar optical amplifier and a silicon-based laser. "The compact planar amplifier will be used for high-speed optic communications for the metropolitan network. The silicon-based laser will enable the development of intra- and inter-chip optic connections, a very advantageous solution because with the extreme miniaturization of electronic components, the heat accumulated by the - albeit very weak but extremely dense - electric currents makes heat evacuation problematical and increases material deterioration in the long run," explained the Caen based researcher before adding that using optic connections will also move clock frequency out of the MHz range and into the GHz range.

So, the Americans' reaction and the fast launch of MURI is easily understandable. However, although LANCER only has a 2.2 million-euro budget and a three-year time limit, "To date, we have several other resources and it'll be our job to use them well," stated Richard Rizk who will be in charge of coordinating the work of the 30 to 35 European research scientists involved in the project. They come from renowned research organizations in France (SIFCOM, the INPG IMEP [Institut de Microélectronique, Electromagnétisme et Photonique, institute of microelectronics, electromagnetism and photonics]); Italy, University of Trente and the Sant' Anna School of Advanced Studies of Pisa; Spain, University of Barcelona; United Kingdom, University College London and Optical Research Center of the University of Southampton, partnered with Teem Photonics, a French company based in Meylan near Grenoble. So Europe has bankable assets in a competitive race that will be very tough.

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