

**Abstract:**

The Universitat Politècnica de València (UPV), through the Nanophotonics Technology Center, leads SITOGA, an ambitious European research project that aims to develop new technology which will, among other advantages, contribute to improve Internet data rates. The key is the use of two new materials -barium titanate and vanadium oxide- to develop electro-optic devices, such as switches and modulators, key building blocks in communication systems.

**The Universitat Politècnica de Valencia coordinates a European project that will improve data communications performance**

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"The developed technology will be useful for datacom and telecom applications and it could also open new opportunities in other sectors such as the space industry," states Pablo Sanchis, researcher at the Nanophotonics Technology Center of the UPV and project manager.

The integration of the materials selected for this project will enhance the capabilities of silicon photonics technology, improving key parameters such as the operation bandwidth and the power consumption of electro-optic devices. A photonic transceiver with an operation speed of 40Gb/s and a switching matrix with a power consumption in the milliwatts range will be developed in the project.

"We aim to integrate these materials in the silicon CMOS photonics platform. One of the markets with most potential will be photonics transceivers used for data communications, while in the space industry, it would allow us to reduce the weight of equipment and improve the operation speed of satellite communications", says Pablo Sanchis.

SITOGA began last December and it is financed by the Seventh R+D Framework Programme of the European Union.

Together with the Nanophotonics Technology Center of the Universitat Politècnica de València, the multinational IT company IBM and DAS Photonics (spin off UPV), are taking part in the project. French National Center for Scientific Research (CNRS), the Catholic University of Leuven and the German Innovations for High Performance Microelectronics Institute are part of the project as well.



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