

PRESS RELEASE

Bordeaux, 10th of April 2018

ALPhANOV realizes a compact picosecond laser prototype at 780 nm

This compact laser prototype has been developed for a medical diagnostic application of prostate cancer.

The diagnosis of prostate cancer is today an invasive procedure through a protocol of successive biopsies because of the lack of means of imaging tumors in the early stages of cancer. Time-resolved fluorescence measurement is a particularly interesting approach for tumor localization. The principle of this measurement consists of injecting the patient with a fluorescent tracer in the near infrared which will accumulate in a privileged way in the tumors, and then come to locate this tracer with the aid of an optical probe connected to a pulsed laser. This pulsed laser coupled to a chain of measurement of the flight times makes it possible to excite the fluorescent tracer and to locate it in depth relative to the surrounding tissues.

Benefiting from the support of the Nouvelle-Aquitaine Region, this concept, promoted by [CEA Tech](#) and implemented with the University Hospital of Bordeaux and the [IMOTION](#) laboratory (University of Bordeaux), concerns the guidance of biopsies. It requires two complementary steps:

- on the one hand the availability of fluorescent markers of the prostate injectable to humans (indocyanine green ...)
- on the other hand the integration of a bi-modal ultrasound and laser acquisition system for its implementation in a clinical environment. This last point involves in particular the development of a compact pulsed laser that meets both the specifications of the fluorescence measurement and the medical standards in force.

As part of this project, ALPhANOV has developed a compact laser prototype that perfectly meets this specific need and delivers picosecond pulses at 780 nm at a rate of 80 MHz. To do this, ALPhANOV used a technological brick matured by the Girondine start-up [Irisiome Solutions](#).

About ALPhANOV

Established in 2007, ALPhANOV is the optics and lasers technology center of the ALPHA-Route des Lasers & des Hyperfréquences cluster. It acts as a technology transfer accelerator and uses its expertise and know-how to serve innovative projects with industrial target short and mid-terms. It offers multiple modes of action which enable it to act all along the value chain. Its fields of expertise include laser processes and micromachining, laser sources and fiber components, laser and optical systems and health applications of photonics.



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