



## CILAS tells us

### An eye full of a mirror!

The PACA2M platform inaugurated on February 1 this year is the largest optical treatment facility in Europe! It is installed on CILAS's Aubagne site (CILAS also has facilities in Orleans and Limoges and employs 195 persons for sales of 28 million Euros), and is opening up new European markets for this company. CILAS is a subsidiary of EADS Astrium and AREVA (63% and 37% owned respectively) and makes optical and photonic equipment and systems, in some cases using lasers, and its main applications are defence, security, space and astronomy. A "bright" step forwards described by Michel Poulat, its General Manager.



Michel Poulat  
General Manager  
of CILAS

#### > From Orléans to Limoges, passing through... Aubagne!

**Michel Poulat:** The Aubagne centre originated from a merger between CILAS's "Optical thin layers" activity and the Highwave Company in Marseille, and has more than 20 years experience in the design and manufacture of optical thin layers for applications in space, military, scientific and industrial fields. CILAS is now a European leader in the subject.

#### > A brilliant sense of the network

**Michel Poulat:** This success is also the result of a large number of partnerships:

- with the Fresnel institute, recognised as being one of the best laboratories in the world for research on thin layers (a partnership set up by the Highwave Company)
- with the competitiveness clusters in the region, including the Optical and Photonic cluster (POPSud/OPTITEC), that bring together many of the region's laboratories (including the LAM and LP3) and also companies that are active in the field.

This policy enabled the implementation of an extremely innovative project, namely the PACA2M platform inaugurated on February 1, 2010.

### > An impressive space mission!

**Michel Poulat:** At the moment, the ESO (European Southern Observatory) is working on the manufacture of the largest land telescope in the world. In this program, CILAS is responsible for developing an adaptive mirror larger than 2.5 meters and actuated locally by 8.000 motors! This system is capable of real time compensation for atmospheric turbulence that causes interference of all astronomical observations. This telescope, the E-ELT (European-Extremely Large Telescope) will comprise many different mirrors. The PACA2M platform has become crucial to successfully make the thin optical layer deposits on mirrors of this size, with great technicity and complexity.

### > PACA2M is twice as good!



The PACA2M platform inaugurated on February 1, 2010

that thin layers can be deposited on large parts satisfying very stringent requirements (resistance to aggressive environments) and in large series.

### > A high faculty of attraction

**Michel Poulat :** PACA2M was labelled by the Popsud competitiveness cluster and received grants. In return it will partially share this equipment and allow priority of use for its members. More broadly, the objective is to contribute to the economic development of photonics in the PACA region, because PACA2M is unique on the Old Continent and exerts a genuinely strong attraction force. It is a key part, and will attract major players and projects in photonics from all over Europe.



## Other CILAS product lines

### Assistance in docking, laser designation, sniper detection

Laser designation is used for guidance of missiles or shells to assure maximum strike precision (less than one meter from the target). Sniper detection designed and made by CILAS is the only system in the world capable of detecting snipers before they fire ....

Activity in active imagery is used in both military and civil applications (for example such as astronomy).

### Size grading

This technology was invented almost 40 years ago; it measures the size of particles found in the composition of a powder, cream or cement bag ... This application is useful for the food industry and also for the cosmetics, pharmaceutical, mining and chemical industries.

### The Megajoule laser

Subsequent to a decision by the President of France to terminate nuclear tests in 1995, CILAS was involved in the exceptional Megajoule laser project. This laser is composed of 240 laser beams distributed in 30 lines of 8 beams each and that will be installed in a 40 000m<sup>2</sup> building as long as the Eiffel Tower and as high as the Arc de Triomphe. It is installed near Bordeaux, and will be capable of simulating the conditions of a thermonuclear explosion in the laboratory.

### Thin layers

CILAS is a world leader in the use of thin layers for the treatment of industrial and scientific optical surfaces. One example application is hyper-spectral filters for the space sector. These filters are installed on satellites and they are used to take images of the earth's surface at different wavelengths. Consequently, the moisture content of a field, or the quantity of chemical fertiliser used, etc., can be measured. There is an extremely broad application potential for these filters (astronomic instruments, scientific, industrial instruments, etc.).

### Transparent optical ceramics

CILAS is developing transparent ceramics that can be used as optical components. These high quality materials that have very high transparency and resistance (up to 2 000°C) are produced using new synthesis techniques. They were developed in Limoges, and CILAS is the only European company to master this know how that will extend applications of lasers into new fields (chemicals, electrical insulation materials, etc.).

**For further information :** <http://www.cilas.com/index-us.htm>

<http://www.popsud.org/> The PopSud site

<http://www.fresnel.fr/spip/> The Fresnel Institute site

<http://www.eso.org/public/france/about-eso/esoglange.html> The ESO (European Southern Observatory) site

<http://www-lmj.cea.fr/fr/experiences/index.htm> The Mégajoule laser site