

# TEMIS

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## news

B E S A N Ç O N - F R A N C H E - C O M T É - F R A N C E

### Editorial

The investments made by TEMIS provide investors with a framework and foreseeability. Accessibility, connections to high-speed digital and railway networks, dedicated property and a high-quality living environment are just some of the attractions of our region... but even they would not be sufficient without support for higher education, training, research and innovation. TEMIS Sciences, which has been set up by the Franche-Comté region with the support of the EU, the French state and other local authorities, is a valuable component of the innovation ecosystem of TEMIS. Industry, researchers, students and employees all enjoy an exceptional environment for enterprise and innovation thanks to the closeness organised between research, training and industry.

The university campus, ISIFC and ENSMM, the combined research units of FEMTO-ST, UTINAM etc. are among the institutions businesses can work with in a space dedicated to exchange and dialogue that is conducive to creativity, enterprise and innovation. Our educational institutions in microtechnology can offer fine opportunities for professional development through research with TEMIS Sciences, which brings together six of the seven departments of FEMTO-ST in the same facility. TEMIS Innovation-House of Microtechniques is a true melting pot for innovative enterprise, providing comprehensive support to those students or fresh graduates who wish to exploit research and set up their own business as a possible path to career success.

Against the backdrop of the current crisis, innovation is more than ever the real driver of differentiation and growth. We firmly believe that is true, and it will be demonstrated again at Micronora, with the latest technology advances in the areas of precision and miniaturisation, and micro-mechatronics in particular this year.

Jean-Louis Fousseret,  
Mayor of Besançon  
President of TEMIS and Grand Besançon



SPECIAL

## TEMIS Sciences



They are in TEMIS, they  
are also at Micronora



Stéphane Decayeux tells us  
about his vision of the luxury  
goods market



## TEMIS SCIENCES, FLAGSHIP OF RESEARCH IN FRANCHE-COMTÉ

*TEMIS Sciences aims to be the home of a top-notch research centre. This is a decisive project for the profile of the micro-technology and nanotechnology industry on the European scale. The complex to be inaugurated in November 2014 is made up of a research building of 5300 m<sup>2</sup> supplemented by a clean room extension covering 850 m<sup>2</sup> adjacent to that of the House of Microtechniques. The buildings will bring together in the TEMIS technology park most of the human and technological resources of the FEMTO-ST Institute, now one of the largest French laboratories in engineering science, which sets standards on the European level. Cross interview with Nicolas Chaillet, Director of FEMTO-ST, James Dat, Director of Research and Higher Education - Region Franche-Comté, Bruno Favier, Director of TEMIS and Daniel Courjon, Project Coordinator when he was DRRT of Franche-Comté.*

### One of the largest buildings of public research in France

"With over 6000 m<sup>2</sup> dedicated to research in microtechnology and nanotechnology, TEMIS Sciences is not merely the largest buildings for public research in Franche-Comté, but it is also one of the largest centres dedicated to engineering science in France", stressed James Dat. Nicolas Chaillet, whose staff are starting to move into the building, emphasised the quality of this exceptional facility: "The researchers of FEMTO-ST were brought into the designing of TEMIS Sciences from the outset, so that they could state their specific needs for excellence at their job. And now, TEMIS Sciences offers them an exceptional and highly functional technical environment. The equipment is suited for the leading-edge research work of the Institute, whether in terms of pooled workshops, experiment rooms, special infrastructure for optics and photonics work or for micro-nanosciences".



Nicolas Chaillet



James Dat



Bruno Favier



Daniel Courjon

### An emblem for a true development project

"The TEMIS Sciences operation is truly the result of a common commitment shared by the State, all the local authorities, the world of higher education and that of research" Daniel Courjon pointed out. "Since 2006, the project was a priority in the regional development plan for 2007-2013. The central government agreed to support the project, and further, to secure the support of the European Union for this large operation, worth over € 30 M. Europe allocated a little over € 15 M of ERDF funds to TEMIS Sciences, in what was the largest European allocation in the regions for 2007-2013! For its part, the Franche-Comté region played a decisive part by accepting the responsibility of project owner in 2008 and conducting the work. With Grand Besançon and the département of Doubs, which were also involved in the project, it may be said that the common commitment to the operation formed a sort of holy union".



## The cornerstone of the innovation ecosystem

"While TEMIS Sciences is reinforcing the specificity of excellence in microtechnology and nanotechnology in Franche-Comté around its flagship FEMTO-ST Institute, it is also the cornerstone of an innovation ecosystem with a human dimension that is being developed in the technology park" stresses James Dat.

"The triptych organised around industry, education and research is showing all its potential here. And it is successful in growing markets that often require innovation that leads to step changes. Micro-robotics or nano-robotics for medical engineering, atomic micro-clocks, ChronoMEMS or other sensors that are fully independent for their power needs are a few examples". Nicolas Chaillet adds: "And by reinforcing the closeness of the researchers of FEMTO-ST from different areas, we will further consolidate the multidisciplinary and interdisciplinary synergy of our laboratory. That synergy is a recognised requirement for more innovation".



## 6150 M<sup>2</sup> DEDICATED TO RESEARCH IN MICROTECHNOLOGY AND NANOTECHNOLOGY

- Pooled laboratories and workshops: 2175 m<sup>2</sup>
- Administration, management and researchers' offices: 2170 m<sup>2</sup>
- Library and shared spaces: 955 m<sup>2</sup>
- Clean room extension: 850 m<sup>2</sup>, of which 465 m<sup>2</sup> of dust-controlled rooms

## Power of attraction

"TEMIS Sciences is a powerful lever for attraction" said Nicolas Chaillet. "For FEMTO-ST and its researchers, of course, and also for the whole business fabric, which benefits from an environment of first-rate research and development

"Bruno Favier went on: "now, within a 200-meter radius, there is the incubator, the nursery, the company hotel, the technology hall, the clean room of TEMIS Innovation, ENSMM, ISIFC, the FEMTO-ST Institute, the competitiveness cluster for microtechnology and also all the expertise and financing networks such as BpiFrance, venture capital and development capital companies. The immediate closeness of the new research capacities in the areas of Micro Nano Sciences and Systems (MN2S) and Optics combined with reinforced clean room micro-manufacturing capabilities will offer an exceptional environment that will foster research and enterprise".

"On the subject of appeal, I would also like to emphasise the ability to draw students". Nicolas Chaillet pointed out: "If the base, or rather the core, of higher education lies in research, its lifeblood flows through students. And to have good researchers, we need good students. An amenity such as TEMIS Sciences can constitute an interesting lever to reinforce the bonds between training and research, to make it easier to acculturate students, future innovators, future doctoral students and future researchers to the world of research."



## FEMTO-ST INSTITUTE

- Combined unit associated with the CNRS, the University of Franche-Comté, ENSMM and UTBM
- 700 staff (researchers, teacher-researchers, doctoral students and technical and administrative employees)
- 7 science departments: Automation and Micro-mechatronics Systems, Complex Systems IT, Energy, Applied Mechanical Engineering, Micro Nano Sciences and Optical Systems, Time and Frequency



## FOCUS ON ULTRA-LUXURY GOODS

*Interview with Stéphane Decayeux, MD of DECAYEUX STI*



Today, your group, DECAYEUX STI, sets the standards for subcontracting in metal work. By buying out TECHLAM via DECAYEUX LUXE, you have acquired a subsidiary devoted to the luxury goods industry. Could you tell us more about your main markets?

For over 30 years, our group has been serving major leather goods brands, which continue to account for most of our business.

By taking over TECHLAM and setting up DECAYEUX LUXE in Besançon, we were looking to extend our customer base by gaining a position in the jewellery and watchmaking industry. The region is widely recognised for its know-how in the area.

The luxury goods industry is a strategic industry for France, which continues to be the leading manufacturer in the market. However, it would appear that business was a bit slower in 2013 and that the decision-makers in the industry are reviewing their strategy. What do you make of it and what are the trends?

It is true that 2013 was marked by a fairly significant drop in volumes from certain customers. At the same time, average prices were ultimately higher, and the luxury goods industry continues to grow even though volumes are slightly smaller.

In fact, the growth of emerging markets and the new consumer trends of their customers have driven manufacturers to make changes to their products. New customers are less interested in standardised products, even when these bear the signature of prestigious brand. A name alone is no longer enough. The demand is moving towards more personalised products, rare, almost exceptional products. To avoid being one of the crowd, major brands have decided to raise their game and make extraordinary products. The quantity of goods on offer is smaller, but the quality is extremely high.

What do those changes mean for suppliers of the luxury goods industry?

That focus on ultra-luxury items has made us design and manufacture more complex products that require greater technological expertise, complicated mechanisms, ever more specialised know-how in the use of precious metals or the development of innovative materials and treatments. For our part, we have just taken on an employee with a PhD in materials from the FEMTO-ST Institute in order to support our capacity to innovate early on in the development process.

The other trend for luxury goods suppliers is that of the need to speed up our development capabilities. In order to see off emerging competitors, our customers need to save time. For suppliers, that particularly leads to the elimination of certain stages such as inquiries; our relationship with our customers is now more that of a partner than that of a supplier. And partnership means that we need to be capable of offering a complete service within tight schedules and with ever more stringent requirements, in view of the context.

Are you creating your own brand with DECAYEUX GOLF?

In 2013, we decided to leverage our know-how and expertise to create a prestigious line of original and refined creations for golfers. All our products are made in France, in our workshops, using the industrial techniques of forging, cutting, machining and polishing. All the finishes we use come from processes that have been developed by us specifically for the finest leather goods brands. They meet the most demanding standards in terms of durability and resistance to impacts. Our products are available in golf courses and can also be ordered online.

Soon, they will be seen on Golf Channel and we will also be partners of the 42<sup>nd</sup> Ryder Cup event in 2018!



More about DECAYEUX GOLF  
[www.decayeuxgolf.com](http://www.decayeuxgolf.com)



### ➔ DECAYEUX STI, IN FIGURES

- Metal worker for over a century
- Over 14 million parts produced each year
- With over 3000 different items
- Luxury goods: 40% of turnover
- 9 manufacturing facilities
- 500 staff
- 230 customers





## VIBRASENS IS INAUGURATED

*VibraSens is specialised in the design and manufacture of industrial vibration sensors, offering its products to areas where dynamic instrumentation is of the essence, such as energy or the environment. The company inaugurated its new premises in TEMIS on 5 September.*

■ Specialised in monitoring electronics, the sensors of VibraSens can be installed in all rotating machines, including wind and other turbines, pumps and fans. They detect the slightest abnormal vibrations and also supply data to technical control centres about the wear and tear of parts or the need to schedule maintenance. Today, 80 % of the production is exported.

The company moved to its new premises in TEMIS in a building with double certification: Passive plus-energy building. VibraSens is committed to the environment and was looking for a building that would be consistent with its approach to working.

That is why the company naturally turned towards an ergonomic building that would also be energy efficient. VibraSens appointed the builder Penapale for the project. The mission was a success, since the building is not just passive, but even has plus-energy credentials!

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## FRANCE CHIRURGIE INSTRUMENTATION HAS MOVED INTO TEMIS HEALTHCARE

Subsidiary of the German group Carl Zeiss Meditec, which operates internationally in the optics and optical electronics industry, France Chirurgie Instrumentation has moved to a new building with an area of 1565m<sup>2</sup> in TEMIS Healthcare. FCI was founded in 1984, and has mastery over biomaterials to serve ophthalmic surgery. The company now has 30 staff, and markets a large number of prosthetic products that incorporate ever more sophisticated biomaterials.

**Contact: FCI PRODUCTION**  
2, rue Carl Zeiss - TEMIS Santé  
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### ➔ CARL ZEISS GROUP

International leader of Optics and Optical Electronics (24,600 employees, € 4.19 thousand million, 40 production facilities, 20 R&D centres)  
In France: 233 employees, turnover: € 89 M

THEY ARE IN TEMIS, they are also at Micronora



## FINE INVESTMENT BY **CRYLA**

■ By moving to TEMIS in August 2013 in its new plant covering 3200m<sup>2</sup>, CRYLA has multiplied threefold its capacity to produce microtechnology components and subassemblies. A major advantage for the company, which is now growing steadily in the markets for aeronautics (60% of its production), medical engineering (25%) and luxury goods (10%).

In order to continue its development, CRYLA recently made extensive investment in the latest generation of production equipment; in particular, it acquired a new Bruderer cutting press, new machining centres with four and five axes and a vertical and horizontal press for injection and over moulding.

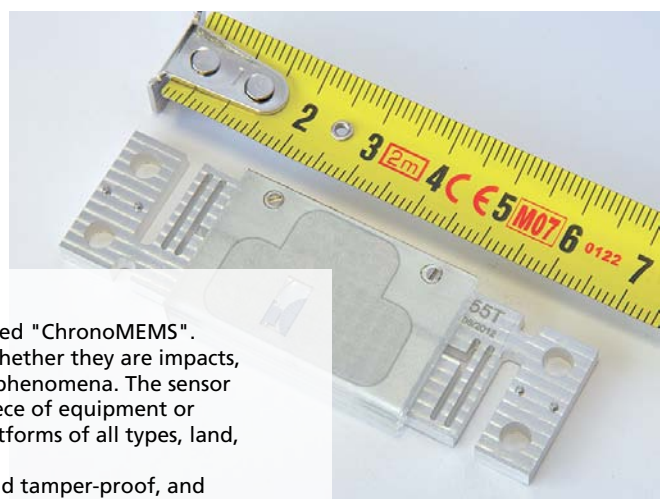
With 72 employees, CRYLA achieves € 7 M turnover, a quarter of which is from export. The company now intends to intensify its growth in international markets.



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## **SILMACH:** ADVANCEMENT OF LAND, NAVAL, AERONAUTIC AND SPACE SAFETY

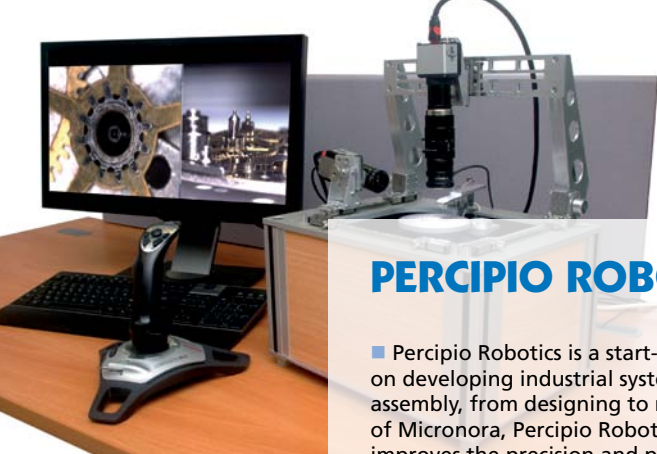
■ SilMach finalises the development of a new range of sensors called "ChronoMEMS". This MEMS sensor detects the events experienced by a structure, whether they are impacts, vibrations or deformations that are due to mechanical or thermal phenomena. The sensor does not need energy, and can accurately track the fatigue of a piece of equipment or a system. It represents a considerable advance for the safety of platforms of all types, land, naval, aeronautical or space. The micro-sensor offers the further benefit of being very robust and tamper-proof, and insensitive to electromagnetic environments. ChronoMEMS is virtually perpetual; it is already used with crossing apparatuses and is undergoing experimentation with aircraft and ships. It can find a number of applications in industry and science. Can be seen in MICRONORA zoom and at a dedicated talk by SilMach on 23 September at 2.30 pm: "ChronoMEMS, Energy Free Sensors for Structural Soundness Inspection".



Find out more  
[www.silmach.com](http://www.silmach.com)








## PERCIPIO ROBOTICS

■ Percipio Robotics is a start-up that originated in FEMTO-ST, and works on developing industrial systems for micro-manipulation and micro-assembly, from designing to marketing. In the mechatronics zoom of Micronora, Percipio Robotics will present its robot machine, which improves the precision and productivity of manipulation and assembly operations in watchmaking. Its user-friendly system allows the watchmaker to control the machine as in a video game! Also of interest, the talk given by Percipio Robotics on 25 September at 10 am on "Robotics to Serve Microtechnology: a Gradual Approach using Cobotics".



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 Find out more  
[www.percipio-robotics.com](http://www.percipio-robotics.com)

## MECASEM

■ Located in TEMIS since 2011, Mecasem brings together two complementary areas of expertise: characterisation tests for metal materials and metrology in laboratories or on site. With ISO 9001 and EN 9100 certification and COFRAC and NadCap accreditation, the company is also approved by DIRECCTE for legal metrology, for the periodic verification of scales up to 320 kilos. In Micronora, Mecasem will show visitors its wide range of services for industrial testing and metrology, and its online management tool for measuring instruments.



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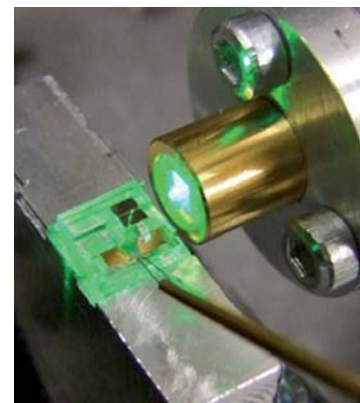
## CRYSTAL DEVICE TECHNOLOGY

### OUR FUTURE LIES IN THE INTELLIGENCE OF MATERIALS

■ Crystal Device offers innovative and tailored technology solutions for miniaturising electro-active components, reducing their power consumption and adding ever more functions in smart systems.

Thanks to its radically new technology, the components and systems developed by Crystal Device are strategic components for the applications of the future.

Crystal Device provides a unique response to each customer, through personalised developments and the production of prototypes and small runs of components that are perfectly adapted to the systems of its customers. The expertise of Crystal Device lies in the forming of intelligent material for applications in robotics (drones, humanoids etc.), watchmaking, and optical telecommunications.



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➔ **FIND THE TEMIS TECHNOLOGY PARK AT MICRONORA HALL C BOOTH 208/214**

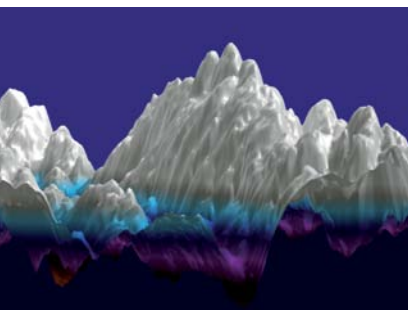


# in brief

## New properties available in TEMIS

Two new property projects are under study for offering close to 5000m<sup>2</sup> for technology industries and services.

- The **Company village** for industrial companies: this project relates to close to 2500m<sup>2</sup> organised in modular workshops (cells covering 100m<sup>2</sup> to be combined to suit the needs of the buyer or tenant).
- **MICROTECH 2** for technology or research activities, industrial and scientific services: located next to TEMIS Sciences, the 2400m<sup>2</sup> building is designed to address the needs of companies who are looking for offices and spaces dedicated to research or transfer.



## Digital Surf acquires 100% of the shares of the Danish developer Image Metrology

Digital Surf develops surface imagery and metrology software for microscopes and profile meters. In July, it announced the signature of an alliance with Image Metrology, developer of near-field microscope image analysis software for nanotechnology. With that agreement, Digital Surf acquired all the shares of Image

Metrology. However, the two companies continue to coexist and retain their senior management. They intend to exchange their software technology and know-how in order to supply the best image analysis and surface metrology service to their respective partners and users.

Find out more: **CHRISTOPHE MIGNOT**

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## The tram at TEMIS Santé

The tram system in Besançon was inaugurated on 30 August 2014. The line has a 14.5 km route connecting 31 stations from the north-east to the south-west of the city, and linking up the station and the hospital. The tram now serves the healthcare centre of the TEMIS technology park.



## News of training in Medical Devices at ISIFC

The second day for continuing education dedicated to persons working in medical devices brought together some 100 persons on 4 September in Besançon, around the subject of innovation. New biomedical products are ever more complex, and can mix electronics with stem cells, nanoparticles or medicinal products. In that context, regulatory issues are also more complicated.

The representatives of the French national agency for the safety of drugs and healthcare products, the national union of the medical technology industry and certification bodies made their contributions and replied to the queries of biotechnology companies developing major innovations such as biodegradable stents or artificial pancreases. In the logic of the institution, which offers training suited to the needs of industry, final year students took part in the day's event.

More information: [www.isifc.univ-fcomte.fr](http://www.isifc.univ-fcomte.fr)

## \_diary

### MIDEST 2014 - 4/7 November 2014 - Paris Nord - Villepinte

In this fair dedicated to industrial subcontracting, come and see the regional companies in the collective booth of the chamber of commerce and industry of Franche-Comté. (hall 6- booth K144)

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## \_nomination

Olivier Mériageux, Director of the microtechnology park is named DG of SATT GRAND EST



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