

TEMIS 60 news

www.temis.org

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

EDITORIAL

The investment momentum continues at TEMIS and will increase in 2020 with the implementation of many promising projects for the future of the Technopole community.

Students and professors on campus, employees and entrepreneurs, researchers, innovators and start-upers... everyone will be concerned by the major transformations to come. All will contribute to the quality of the living environment, to the influence, performance and competitiveness of our region and all will be at the forefront of its talents and vital forces.

The stakes are high as it is a matter of shaping an ecosystem capable of meeting the many societal challenges facing us in terms of tailor-made medicine, ecological transition and production models. The latest technological advances in artificial intelligence, cell and tissue therapy, microtechnology, robotics, IoT... will undoubtedly contribute to this.

At TEMIS, universities, local authorities, the State, clusters and companies work together to shape a regional economy that is as inclusive as possible, and where science, companies and individuals will be able to contribute to these challenges of the future.

Watchmaking know-how has been able to evolve into sectors of high technological value where precision and miniaturization are essential such as in aeronautics, space and biomedical sectors.

We have many assets to build this new economy where skills are becoming increasingly strategic, thanks to the campus for microtechnical professions and qualifications, the BIO INNOVATION development center and the modernization of the university campus.

On behalf of TEMIS, I wish you all the best!

Bruno FAVIER, Director of Technopole



TEMIS
BESANÇON
TECHNOPOLE MICROTECHNIQUE & SCIENTIFIQUE



FRANCE, THE BREEDING GROUND FOR DEEP TECH ?

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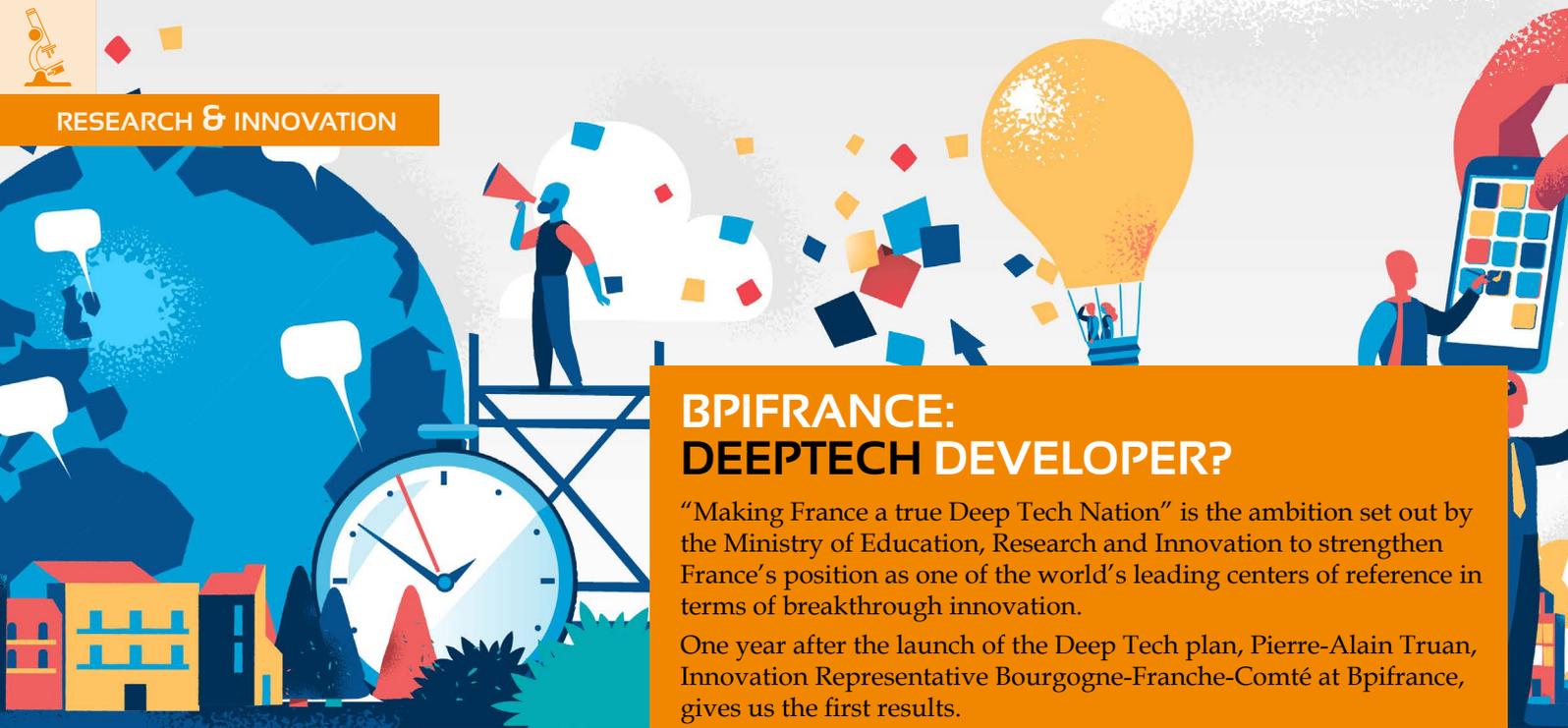
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BUSINESS & ENTREPRENEURSHIP
Implementation - Vision
Micromechanics



BPIFRANCE: DEEPTECH DEVELOPER?

“Making France a true Deep Tech Nation” is the ambition set out by the Ministry of Education, Research and Innovation to strengthen France’s position as one of the world’s leading centers of reference in terms of breakthrough innovation.

One year after the launch of the Deep Tech plan, Pierre-Alain Truan, Innovation Representative Bourgogne-Franche-Comté at Bpifrance, gives us the first results.

“The ambitions of this Deep Tech plan can be described in 4 key figures: double the number of start-ups based on breakthrough technological innovations, multiply by 4 the number of fundraising events, halve the time it takes to negotiate licenses and multiply by 2 the number of women at the head of these companies. With 1,500 Deep Tech start-ups registered by the end of 2018, we already have a favorable and envious breeding ground. It is no coincidence that our engineers and researchers are recruited worldwide. Today we wish to reinforce this dynamic thanks to the Bpifrance engine.

In 2019, we have funded 300 start-ups with our 3 devices:

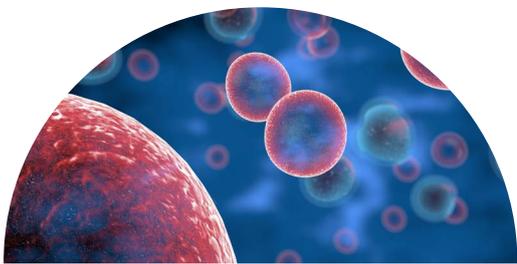
The French Tech Emergence Exchange for start-ups less than one year old, Deep Tech grants split 50/50 between grant and advance, as well as the French Tech Seed in a convertible bond format for pre-seed at the time of the first round of financing. In total, more than 70 million has been invested, to which can be added our investment activity, which has mobilized around 350 million for some 20 national companies.

In Bourgogne-Franche-Comté, we have identified about fifteen existing Deep Tech start-ups. We want to help start-ups to be created but also SMEs interested to start a Deep Tech project. We have already activated a Deep Tech grant of €1.8 million and a French Tech Seed grant of €140,000. For 2020, 3 start-ups are already targeted on the French Tech Emergence Exchange. This further strengthens the region’s action in terms of funding collaborative projects via the FRI (Regional Innovation Fund), RIS3 (Research Innovation Smart Specialization Strategy) and PSPC Régions (Structuring Programmes for Competitiveness) schemes.

The Deep Tech plan builds on Bpifrance’s historical partners in the world of Research which are the Technology Transfer Companies and therefore today SAYENS, DECA BFC incubator, clusters, universities and regional schools.

It is also the Deep Tech Tour, which we hope will take place in our region in 2020, to instill a taste for entrepreneurship among researchers, PhD students and engineers, as well as the Deep Tech Week from March 9 to 13 on the campuses of Île-de-France.

Finally, the I-PhD competition, which trains researchers to become future entrepreneurs, will be launched for a 2nd edition in 2020: the 2019 edition has selected 4 regional winners. They are the embodiment of our desire to bring out the genius in our laboratories and turn it into a nugget in the industrial field.”



INNOVATIVE THERAPIES DAYS : 2-DAY CONFERENCE IN BESANÇON

If the Bourgogne-Franche-Comté Region is the birthplace of micro-technologies, it is the alliance of these technologies with cell therapy that has enabled the RIGHT, EFC-BFC-INSERM-UBFC unit to bring out flagship products such as CAR-T cells!

These innovations will be highlighted on July 1 and 2, as Besançon will welcome the world’s leading players specializing in the development of innovative therapies, their manufacturing and regulatory framework.

Clinicians, scientists and industrial partners will take turns presenting their latest scientific findings on the development of CAR-T cells, stem or pluripotent cells, their clinical transfer and the challenges of their industrial manufacturing. These diverse academic, private, local and international actors will also give their vision of the use of innovative therapies in tomorrow’s medicine. “Innovative Therapies Days” will allow a significant part of the exchange between partners through an Exhibitor Village, B2B sessions and discussion sessions.

TEMIS SANTÉ, INITIATOR OF BIOTECH PROJECTS, STRENGTHENS WITH BIO INNOVATION

The medicine of the future is envisioned today in our laboratories. But the arrival of these medical revolutions on the market requires strong interactions between all the players in an extremely complex chain. Ideally, in order to save precious time, a chain of well-identified actors communicating easily with each other due to their familiarity and located in a limited territory, would be needed...

Bourgogne-Franche-Comté has just the right conditions for the development of such projects: Bio Innovation is one of the latest examples.

The launch of Bio Innovation in 2020 in Besançon will thus encourage the rapid emergence of relevant health innovations. The setting is ideal since Bio Innovation is located directly in TEMIS Santé, the innovation complex specially designed for companies and laboratories in the health, biomedical, biotechnology, medical-surgical equipment and e-health sectors. It already hosts many companies, such as Alcis, Stemcis, FCI, Covalia...

BIO INNOVATION: 4,000 SQUARE METERS TO PROMOTE YOUR HEALTH PROJECTS

2,300 square meters of dedicated premises: tailor-made rental offer, offices and laboratories

700 square meters of technological platforms (molecular and cellular biology laboratory, 3D printing area, prototyping platform, etc.).

Shared spaces: showroom, seminar space, coworking center



A place to bring together the major players in innovative biotherapies and medical devices, to support exchanges between researchers, practitioners, students and industrialists and to support the creation of start-ups, this is exactly what Bio Innovation will offer in Besançon.

Bio Innovation is open to high-tech medical and biomedical companies and start-ups in maturation, incubation or creation. They will be able to find both a rental accommodation offer and access to an open innovation platform in a development center deployed on 5 levels.

All of which is ideal to plunge into the core of translational research where microtechnology, engineering sciences and life sciences intersect to create a unique scientific and technological expertise.

First illustration is that early stage collaborations are underway between industrialists and the French Blood Establishment (EFS). The EFS will occupy the 1st floor of Bio Innovation and will provide a technical platform via services (cell analysis, molecular biology, etc.).

Bio Innovation is also perfectly integrated into the global ecosystem: higher education institutions (Faculty of Medicine and Pharmacy, ISIFC), the University Hospital, its Clinical Investigation Center and its Oncology and Biology Unit (PC BIO) are located nearby. Enough to encourage new collaborations in the future!

Another key asset of the region, on which Bio Innovation can rely on and to which it will provide many services, is a strong Medtech

industrial fabric, led by the Microtechnology Cluster and its Innov'Health cluster, which enables pre-industrialization in the vicinity.

Designed as the counterpart of Temis Innovation, House of Microtechnology, this new device "reinforces our position as an engineering territory for Deep Tech. Beyond that, Bio Innovation makes Grand Besançon Métropole a reference in everything related to the production of biomedicines, both in terms of processes and innovative therapies themselves, particularly those resulting from blood research in immunology and hematology-oncology for example," concludes Bruno Favier, Director of Temis Technopole.

[+ www.temis.org/medtech-biotech.html](http://www.temis.org/medtech-biotech.html)



COLLECTIVE REFLECTION ABOUT TIME: WHAT FUTURE FOR THE SECTOR?

Sébastien Thibaud, you are a Professor at the ENSMM (National Higher Institute of Mechanics and Microtechnology) and researcher at the FEMTO-ST Institute. Last December, at the initiative of the Prefect, you brought together more than 200 people to discuss watchmaking know-how in the region. The goal: to find together solutions to revitalize this sector. What conclusions do you draw from that day?

“Today in the Doubs, we have 18,000 jobs in watchmaking, including a significant number of cross-border commuters who work in Switzerland. This proves one thing: we have the breeding ground and the skills, whether through the presence of very high-quality subcontractors or due to the regional laboratories and schools that have significant resources, which are regularly mobilized by our Swiss neighbors elsewhere. On the other hand, watch brands tell us that they have difficulty in finding subcontractors and also in sourcing critical components locally. Therefore, the challenge is to network our companies by helping them to get to know each other and also to accompany them in order to innovate and acquire the know-how.

With regard to the question of critical components, we asked ourselves collectively: is there a place for a mechanical watch movement that could be used by French manufacturers? In any case, we have the R&D, training, industrialization capacities: it is necessary to gather the skills or reintroduce them to our territory. Working groups led by the AER BFC and the Luxury & Tech Cluster will continue the reflection following the afternoon’s session by the Regional President.

At the same time, there are two possible ways to revitalize our activity: re-implanting the know-how that has been lost in order to remanufacture the missing parts on the territory, or proposing new alternatives. In both cases, we need to set up consortia, clusters of industries that can bring together both craftsmen and SMEs/SMIs in the sector.

Companies are interested: they know that they can acquire skills that will enable them to meet watchmaking demands of course, but that they will also be able to apply them to other sectors such as transport, connectivity, health, luxury, sensors and intelligent systems...”

You also inaugurated the MIFHySTO platform, which was launched in 2011 and has just moved to new premises. What are the connections with watchmaking?

“The platform is there to help our companies develop the manufacturing processes of the future. Largely financed by the Bourgogne-Franche-Comté Region, it has

a vocation of research and transfer to companies, with a strong focus on microtechnology. Relying on a team of 40 professor-researchers, technicians and engineers, it offers companies support through research projects or transfers. Manufacturing, characterization of materials (especially at the sub-millimeter scale), choice of new processes, surface treatment, additive manufacturing: the subjects are numerous. In fact, we receive several requests per week, sometimes for projects of up to several years. For example, we recently worked with 4 local bar turners to develop a new approach to the machining of precision components based on hard machining. A watchmaking application that the 4 partners, Baron - Décolletage de la Garenne - Fralsen - IDMM, will be able to deploy in other sectors”.

FRANCÉCLAT SUPPORTS THE WATCHMAKING INDUSTRY

Although Francéclat works from Paris to promote the HBJO (watchmaking, jewelry, silverware) sector, it is in Bourgogne-Franche-Comté that R&D and technological foresight work is carried out to help craftsmen and manufacturers to develop their practices. Thanks to its technical department located in Besançon, the committee offers companies a range of advice and services: expertise at your fingertips for the regional watchmaking industry.

With work focused on innovation and the efficiency of production systems, Francéclat is working towards the revival of the sector and the constant improvement of a knowledge that is often still very empirical. To this pragmatic knowledge held by companies, Francéclat’s experts bring a scientific vision that allows, for example, a better understanding of the behaviors of matter and thus to adapt practices and performances.

Particularly competent in the optimization of manufacturing processes, Francéclat carries out in Besançon test parts, draws up specifications and can even manufacture small series in precious metals thanks to its new additive manufacturing platform.

The services extend further: library of mechanical and quartz watch movements, library of cast iron defects, service of titration and punching of precious metals, assistance with the implementation of regulations, development of standards, watchmaking laboratory for the analysis of movements, materials laboratory... A real gold mine, such as this metal that Francéclat is among the rare ones to know how to analyze, melt and print.

All companies, watchmakers and others in general, are therefore invited to contact Francéclat to move their projects forward.

+ www.franceclat.fr



TEMIS OUTDOOR : TO THE RHYTHM OF THE TRAIL

For one day, TEMIS Technopole will be under the theme of the trail!

Join us on April 2nd for the 2nd edition of the Run'ification which will offer 2 free races open to all: 8 km for the Temis Run and 5 km of obstacle races for the Campus Run.

A link between athletes, Temis companies, local players and U-Sport, this federating event is led by two Besançon associations. On the one hand Junior Conseil, which brings together students in sports management, and on the other For'Trail, which seeks to make Besançon a capital of the trail.

High-level trail runners Sangé Sherpa and Thibaut Baronian will be among the runners. As they did in 2019 as ambassadors of Grandes Heures Nature, they will share their experience and passion for outdoor activities.

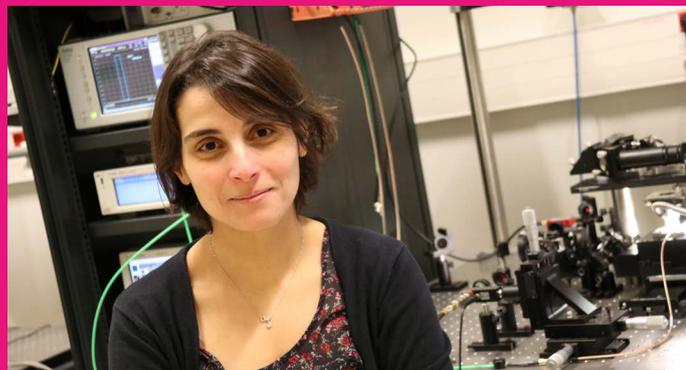


LA RUN'IFICATION

+ www.facebook.com/larunification2020/

SARAH BENCHABANE, ERC CONSOLIDATOR GRANT WINNER IN NANOPHONONICS

With a background in optics and phononics, Sarah Benchabane now seeks to apply her research activities to the quantum field. With success, since her project uNIQUE (Nanophonics for Quantum Information Processing) enabled her to obtain European funding of 2 million euros over 5 years to continue her work at the Femto-ST Institute, which she joined in 2008 as a research fellow. She is one of 301 European 2019 winners and 43 French winners.



Inspired by teams working on similar subjects at the University of Chalmers, Oxford and Chicago, she aims to participate in the emergence of work on quantum acoustics in Europe by associating it with concepts derived from surface elastic waves and phononics, her favorite fields. Her project aims to develop an electromechanical platform for the study of phonons, with a view of helping physicists pursue their research in the quantum field. Specialized in experimental physics, she can notably rely on the Mimento technology center, one of the 5 platforms of RENATECH network to offer state-of-the-art tools. This equipment is crucial, as advances in research require fine precision.

By crossing phononics, nanomechanics and quantum acoustics, her project could also unlock possibilities in other sub-disciplines. To be continued.

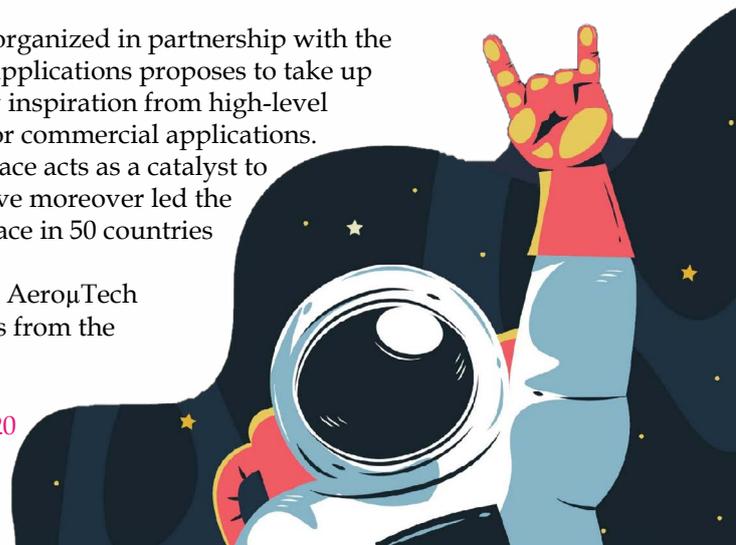
+ www.femto-st.fr

ACT IN SPACE : START-UPS, STARING UP AT THE STARS

Designed by the National Centre for Space Studies (CNES) and organized in partnership with the European Space Agency ESA, this hackaton dedicated to space applications proposes to take up challenges based on space data. Participants will be able to draw inspiration from high-level technologies that are easily reusable and have strong potential for commercial applications. By bringing together individual skills over a weekend, Act In Space acts as a catalyst to bring projects to life in the local economy. The first 2 editions have moreover led the creation of 32 start-ups worldwide. The 2020 edition will take place in 50 countries and 100 cities simultaneously.

Temis Innovation will host the 2nd Besançon edition. Led by the AeroµTech Cluster, it will mobilize regional engineering schools and experts from the industrial and economic fabric.

+ www.polemicrotechiques.fr/evenement/act-in-space-2020





SPECIALIST IN THE AUTOMATED CONTROL OF COMPONENTS, TQS SETS UP IN THE TECHNOPOLE

Originally created to offer bar turners in the Arve valley an automatic component sorting solution, TQS has been able to develop its offer to become today's "zero defect" specialist by relying on 3 values: Innovation, Rigor and Expertise.

Its target is broad since all companies with automated assembly lines are concerned by the "zero defect" issues. By guaranteeing 100% of the components, TQS ensures the continuity of assembly operations and the integrity of the tooling, as well as the final functionality of the products.

Since 2016, TQS is present in Bourgogne-Franche-Comté as close as possible to regional companies. With the construction of a new 1,000 square meters building planned for spring 2020 in the center of TEMIS Technopole, the company wants to accentuate its partnerships with microtechnology companies. These companies will find a strong expertise in microtechnology and automated control, as well as specialized machines for watch components.

As a guarantee of quality, the Keepso software package has been developed in-house and offers a tool oriented towards industry 4.0 that is both fun and user-friendly, enabling the intelligent part of sorting (traceability, recording of operations, maintenance monitoring, etc.) to be carried out and a specific customer portal to be offered. It can be installed natively on all the machines that TQS has been marketing for a year. It can also be used as supervision for a sorting workshop regardless of its equipment.

The Besançon site brings together 8 of the company's 50 employees. All benefit from regular training thanks to the creation of the TQS Academy in 2017. This in-house designed training unit is equipped with technical means and theoretical support. TQS also plans to offer its clients the possibility of benefiting from these training modules as well as various supports to help them produce quality files (PPAP, EI, FMECA, etc.).

Development projects are numerous and Pierre Lozes (CEO of TQS Group) is counting on the implementation within TEMIS to further increase TQS' competences in microtechnology.

[+ http://tqs-group.com](http://tqs-group.com)



AUREA TECHNOLOGY FINALIST OF THE 2020 SPIE PRISM AWARD

Nominated in the Communication category, the company offers to more than 200 clients a complete range of high-performance optical instruments dedicated to Quantum Communications, Quantum Key Distribution (QKD) and Quantum Sensing.

Attending Photonics West 2020 exhibition from February 4 to 6, 2020 in San Francisco in the French Pavilion (booth 857H), it will present its entire range of instruments for quantum applications. In particular, QUANTAXEA will be on display with the first all-in-one entangled photon-pairs source, offering the highest-brightness and visibility available in today's industry, Prism Award finalist.

[+ www.aureatechnology.com](http://www.aureatechnology.com)



AFULUDINE REINVENTS ITSELF TO BOOST ITS LUBRICANTS

With their eco-friendly lubricants, they can discard oil. After 8 years of R&D, Fabrice Lallemand has created AFU Ludine in 2016 and was immediately awarded the Prize from the Ministry of the Environment and Ecological Transition and the ADEME (French Environment and Energy Management Agency). In 4 years, their environment-friendly solution, non-oily and 95% plant-based products, has found its audience. Today the start-up is structured with 3 clearly identified markets: the mechanical industry, professionals and a brand new WinSleek sport line.

Last October, it integrated the BizLab Airbus accelerator: in 2 months of reflection, 4 projects were born and will be developed. While the start-up is already making impressive progress, it has also chosen to integrate the Microtechnology "Propulser" booster to be carried towards new horizons. Tailor-made support to "get an outside perspective and detect how our project could be even more consequential", specifies Fabrice Lallemand.

Tailor-made support paid off: a brand new value proposal is currently being analyzed by the Strategy Committee. The idea is simple but ambitious: to equip States and/or major industrial groups that would like to free themselves from their dependence on oil,

with modules that will enable them to produce their own lubricant from renewable and plant-based products. Therefore, AFU Ludine plans to address directly manufacturers and large oil groups wishing to switch to eco-friendly alternatives. If the start-up embarks on this path with an international vocation, there is no doubt that it will look for new financial and industrial partners.

[+ https://afuludine.com](https://afuludine.com)

CISTEO MEDICAL EXPANDS FOR ITS 10 YEAR ANNIVERSARY

Cisteo Medical will leave TEMIS Innovation's premises next summer to move into a 1,200 square meters building to be constructed on the Technopole with an investment budget of 2 million euros. The company will thus double its working area, with a 200 square meters clean room for which is the direct project management and covering 35 square meters of ISO5 area. The first level will be devoted to manufacturing, the second to R&D and the third to support services. The company leaves itself some leeway for the future since its land can accommodate a second building of the same surface area!

In terms of services, the company is completing its range by focusing on active implantable medical devices. To this end, it has developed new skills in the welding of implantable titanium housings and in the micro-welding of electrical conductor wires with diameters down to 20 microns. This know-how in electronic encapsulation of medical devices has been proven with its client MyoPower and can be used, for example, for neurological stimulation devices.

[+ www.cisteomedical.com](http://www.cisteomedical.com)



in_brief



TEMIS YUKI DELIGHTS TECHNOPOLE

Their Korean and Japanese specialties could already be found in their first establishment on rue Richebourg in Besançon, which opened two years ago.

The aficionados of "bulgogi" (typical Korean barbecue) and sushi, can now visit their new restaurant Temis Yuki located at TEMIS, 17 D rue Alain-Savary.

The 150 seats will attract students from the nearby campus as well as professionals from the pool of companies based in the Technopole.

At lunchtime, 17 menus and their variations in single dishes are offered à la carte as well as an express formula that can be eaten in 30 minutes. The evening dishes are more sophisticated.

+ www.facebook.com/temisyuki/



February 18-19, 2020

Besançon

GRANVELLE DAYS 4TH EDITION

Economic meeting of the Greater Besançon, "Granvelle Days" offer each year to explore a guiding theme from different angles: economic, scientific, sociological.

Organized by the Grand Besançon Métropole, in partnership with the Journal Les Echos and the Doubs Chamber of Commerce and Industry, this 4th edition will offer a decoding on "World economy, local economy, marriage of convenience?".

Daniel COHEN, economist and essayist, will open the highly anticipated conference.

Five workshops will then be offered, addressing the use of data, new uses of the blockchain, French industrial landscape, cities of tomorrow and energy transition.

In conclusion, an open business will question French manufacturing, as a real prospect or a simple trend, with the intervention of Nathalie Damery, President and Co-Founder of the ObSoCo as well as Luc Lesenecal, President of Saint-James, ANEPV (National Business Association of Living Heritage) and INMA (National Institute of Art Professions).

Registrations are open online and free of charge.

www.investinbesancon.fr/journees-granvelle-besancon.html

March 30 to April 5, 2020

Bourgogne-Franche-Comté

INDUSTRY WEEK

The 10th edition will focus on innovation and ecology to invent a sustainable future. Companies can now label their events online to welcome today's students and introduce them to the industry of tomorrow.

www.semaine-industrie.gouv.fr

May 14, 2020

Besançon

BESANÇON UNIVERSITY HOSPITAL'S INNOVATION DAY

This 9th edition will address artificial intelligence in health and research methodologies and funding. The Anesthesia and Intensive Care - Vascular Surgery departments will open their doors to manufacturers.

www.polemicrotechniques.fr

June 30 and July 1, 2020

Grenoble

MEDFIT

The TEMIS technopole and the Innov'Health cluster will once again bring a regional collective of medtech companies to the business convention: manufacturers, subcontractors and companies specialized in research will be in attendance.

www.medfit-event.com

January 31 to February 2, 2020

Besançon

2020 GLOBAL GAME JAM

Organised simultaneously in more than 100 countries, this game allows teams to glow for 48 hours to invent video or board games.

Evidence of a definite enthusiasm, this hackaton has already given rise to nearly 10,000 open source games around the world.

TEMIS Innovation will again host the event for this 6th edition, organized by Dead Pixels Society.

This video game development club of the University of Franche-Comté brings together mainly computer scientists, but all audiences are obviously invited. Close to 70 people are expected. Registrations are free and open to all.

<https://globalgamejam.org>

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