

Top news

2016–2020: FMNT expands

The FMNT (Federation for Micro and Nanotechnologies) saw its mandate renewed for an additional five years on January 1, 2016. The organization took advantage of the occasion to bring in three new labs, bringing its total headcount to nearly 500—a 30% increase. The FMNT is now one of France's largest research organizations in the fields of microelectronics and nanotechnology.

Until end-2015, the FMNT encompassed four labs: LTM, LMGP, IMEP-LaHC, and part of G2ELab's activities. The new, expanded FMNT is now home to Spintec, two research teams from TIMA, and an additional team from LCIS in Valence.

Five strategic research areas and seven labs

The expanded FMNT is headed by Mireille Mouis (IMEP-LaHC) and will focus on five strategic research areas—microelectronics, telecommunications components and systems, integrated measurement systems, materials and components for energy, and components and systems for healthcare—that show just how much the FMNT's scope has broadened over the past several years. The organization's seven labs will work to better leverage synergies, ramp up transversal research topics, and submit joint proposals for EU projects. FMNT had already begun pursuing these goals in certain research areas during its last five-year mandate and will now use this approach on a much larger scale. A new platform, Opera, will be set up as a single point of contact for outside researchers seeking to use the functional characterization equipment. Finally, FMNT will overhaul its website in order to raise its online profile.

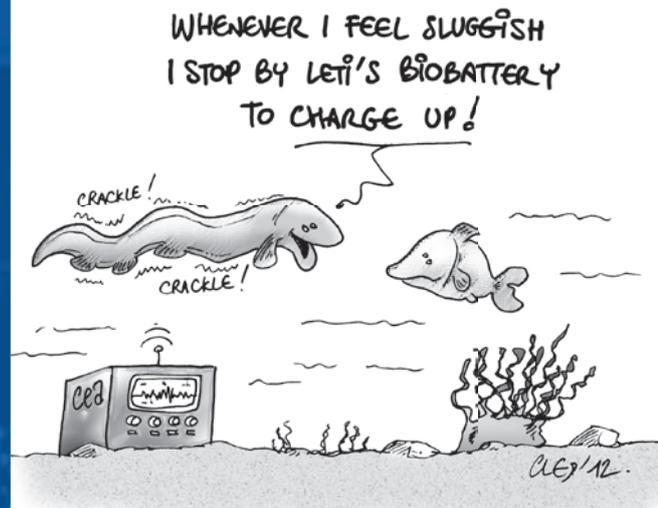
Contact: mouis@minatec.grenoble-inp.fr

Innovation

A biobattery with built-in energy recovery

A biobattery capable of producing energy from ocean and lake sediments would be a wonderful invention! But for it to become a reality, scientists first have to figure out how to extract in real time a source of energy whose characteristics vary on a scale of one to ten depending on the environment. Leti has risen to this challenge with a new interface circuit that enables biobatteries to harvest tens of microwatts, potentially providing a continuous source of power for distributed sensors—temperature, salinity, oxygen, CO₂—used to monitor aquatic ecosystems. The researchers are now working on the biobatteries' long-term reliability, and plan to conduct tests in a lake near Grenoble.

Contact: gael.pillonnet@cea.fr



3D integration: INTACT circuit at the global state of the art

A 3D multicore circuit developed by two teams of researchers from Leti recently set a new global state of the art. The research and development work, conducted under a project spearheaded by IRT Nanoelec, resulted in the development of the INTACT circuit, which offers five times more processing power and double the energy efficiency of the best 3D circuits currently available. The circuit's stellar performance was made possible by a particularly unusual technical choice. The interposer onto which the 96 cores are integrated is active. In other words, in addition to optimized interconnects between the circuits themselves, the interposer also features power management, troubleshooting, and thermal and stress testing capabilities. The demonstrator circuit was built to show off the Grenoble innovation ecosystem's mastery of design and technology for tomorrow's high-performance computing applications. The circuit has been sent to foundry and will be available this summer. Two patent applications have been filed.

Contact: pascal.vivet@cea.fr

Innovation

UV LEDs: could nanowires be the key to efficiency?

UV LEDs produced using the semiconductor material aluminum gallium nitride (AlGaIn) in thin layers perform poorly in the brightness and lifespan departments. Researchers on a joint INAC-CNRS team wondered what would happen if they used the material in nanowire form. And, if their early results are any indication, the use of nanowires could improve UV LED performance. Local fluctuations in the composition of AlGaIn nanowires (due to the fact that the Al and Ga are not evenly distributed) lead to the spontaneous formation of quantum dots. The charge carriers are highly localized, resulting in very intense UV emissions.

A four-year French National Research Agency project to explore the phenomenon and begin studying several systems kicked off on January 1, 2016. INAC is coordinating the project, in which researchers from Institut Néel, LMGP, and Orsay and Montpellier Universities are participating.

Contact: bruno.gayral@cea.fr

Nanocrystals could bring photocatalysis to the masses

Synthetic chemists could soon see a new addition to the catalysts available to them. Researchers at INAC recently showed that core-shell nanocrystals (cadmium selenide-zinc sulfide) are effective catalysts. First, they are active in water, under visible light. Even better, they can transfer several electrons at once, creating complex reactions.

The researchers have successfully stabilized these nanocrystals, which had a tendency to oxidize very rapidly, and are now adjusting the energy level to the reactions they hope to achieve. The overriding purpose of this research is to provide a viable alternative to iridium and ruthenium complexes, which are currently widely used as photocatalysts, but have the disadvantage of being less adaptable and much more expensive than the new catalyst.

Contact: vincent.maurel@cea.fr

See article in the *Journal of Physical Chemistry*: <http://pubs.acs.org/doi/abs/10.1021/acs.jpcc.5b04396>

New advances in phase-change memory

Leti's 12 Mb germanium-antimony-tellurium phase-change memory—which could be used in tomorrow's embedded applications—recently produced record results for performance at high temperatures, a crucial step forward in the march toward automotive applications. And major advances in simulation are providing insights into why the memory is so reliable.

Leti is also working with STMicroelectronics to improve the materials, opening the door to further reductions in both product size and energy consumption and widening the gap with flash memory, which simply cannot stay ahead of the race toward miniaturization. One last advantage: phase-change memory is already used in less-demanding applications like mobile phones, which means it is mature in terms of manufacturing processes.

Contact: veronique.sousa@cea.com

A microdisplay 1,000 times brighter for augmented reality

The microdisplay Leti presented earlier this year at CES Las Vegas was remarkable in two ways. First, its luminance, which is 1,000 times greater than that of current microdisplays, meaning the display remains visible even in bright sunlight. Second, the microdisplay's 10-micron pixel pitch, which makes it possible to play high-resolution video.

The prototype will be used to develop augmented reality glasses that let the wearer see the real environment and superimposed visual information at the same time. The exceptional brightness was achieved by using gallium nitride LEDs, known for their excellent yields. A new hybridization technique, called "microtubes," was used to power each pixel individually. The research was conducted in conjunction with the III-V Lab and resulted in twelve patents.

Contact: francois.templier@cea.fr

Ultra-low-power systems for IoT

A Ph.D. candidate at Leti has developed an analog-digital converter and a signal filtering architecture that are setting new energy efficiency records. The innovation leverages 28 nm FD-SOI and a new, event-driven, signal processing mode, which means the systems are activated by the signal's behavior—such as exceeding a given intensity threshold—rather than by a clock cycle.

The research has resulted in several publications and two patents. The converter also earned the top slot in a Stanford University database for energy efficiency. Future applications will include IoT, a field in which current systems are not nearly energy-efficient enough to enable self-powering communicating objects with integrated energy harvesting systems.

Contact: dominique.morche@cea.fr

Microresonators: the quality factor

Microresonators are offering increasingly impressive "quality factors." In other words, the duration of the vibration induced by an initial impulse is getting longer and longer. This sounds like good news for the applications in which the components will be used—and it is! However, this improved performance is creating a challenge for researchers at Leti. With the usual techniques, characterizing a single microresonator can take up to two hours. To solve the problem, the researchers have developed a new method.

The resonator is exposed to an electrical impulse with a particular shape and within a carefully-chosen and limited frequency range. This prevents the resonance signal from being drowned out by a parasite signal due to the structure of the sensors. The resulting measurement is more reliable than before, takes just 30 seconds per component, and can be automated at wafer level. The method has been validated on several R&D projects.

Contact: antoine.nowodzinski@cea.fr

Superdirective antenna arrays undergo field testing

Leti has developed a compact antenna (with a radius of just 5 cm at 868 MHz) that can selectively read RFID tags just a few centimeters away from each other. A demonstration of the antenna—retrofitted to a commercially-available portable RFID reader—was completed at the end of the French National Research Agency project Socrate. During the demo, operators were able to geolocalize RFID tags from several meters away and with a resolution of several degrees.

The results—protected by two patents—confirm the technology's potential. Here's how it works: several coupled elements charged with complex impedances are located around a base station, delivering directionality equivalent to that of an antenna ten times its size. A Ph.D. dissertation on the research is in the works and several manufacturers have contacted Leti for R&D projects leveraging the technology.

Contact: christophe.delaveaud@cea.fr

Day by day

Patient recruitment has begun for BCI study to help tetraplegics

The Grenoble-Alpes University Medical Center and regulatory authorities have granted Dr. Alim-Louis Benabid approval to begin the clinical research protocol "Brain-Computer Interface and Tetraplegia" at Clinatec. The research aims to demonstrate the feasibility of a patient suffering from tetraplegia due to spinal cord injury to control an exoskeleton's movements over several degrees via an implant that measures cerebral cortex activity. The study will focus on five patients, and recruitment is underway.

Leti, a stakeholder in this research, has designed a permanent electrocorticography implant called Wimagine®, unlike any other in the world. When placed on the surface of the cerebral cortex, it can transmit the brain's signals reliably for years.

Contacts: alimlouis@sfr.fr
frcorinne.mestais@cea.fr

Leti earns kudos from French government evaluator HCERES

The French government's higher education and research evaluator HCERES* has only good things to say about Leti in its recent report, rating the institute "excellent" for science, communication, technology transfer, organization, and strategy and "very good" for education for the 2010–2015 evaluation period.

The evaluator also commended Leti's progress and capacity to adapt to the fast pace of the micro and nanoelectronics industries, as well as the institute's diversification into telecommunications and healthcare. In short, Leti is a world-class research organization that is just as strong in tech transfer as it is in science. The institute also enjoys a particularly solid reputation in Europe.

The evaluators, who spent a half-day interviewing staff, were also impressed with the supportive working environment and the staff's high degree of trust in Leti management.

*Haut Conseil de l'Evaluation de la Recherche et de l'Enseignement Supérieur

Contact: olivier.peyret@cea.fr

MINATEC Ph.D. candidate wins NanoArt 2015

Maxime Legallais, a Ph.D. candidate at LMGP-IMEP/LTM, won the Fondation Nanosciences NanoArt 2015 Award for his photo of a silicon nanowire symbolizing the red ribbon of AIDS awareness. More than 3,000 online visitors voted Maxime's image the best of 2015.

Maxime's research focuses on the electrical properties of nanonets made from randomly-oriented silicon nanowires. His eye-catching photo was pure chance. He captured the image using a scanning electron microscope while characterizing nanonet morphology. The nanowires Maxime uses are generally straight, so the AIDS ribbon was a fluke, possibly due to growth defects or other nanowires stuck nearby, forcing the one in the prize-winning image into a curved shape.

See the photo here: <http://goo.gl/ank8F7>
Contact: maxime.legallais@grenoble-inp.fr

Dr. Anne Vilcot appointed Administrator of Phelma

Dr. Anne Vilcot has been appointed Interim Administrator of Grenoble Institute of Technology-Phelma by the French Ministry of Education, Higher Education and Research. Dr. Vilcot holds an undergraduate degree from ENSERG as well as a Ph.D. in Physics. She conducts research in optoelectronics and optics at IMEP-LaHC and teaches at Phelma. She served as Academic Dean at the school from 2008 to 2012.

Dr. Vilcot succeeds Pierre Benech, who left the position on February 29 when he was appointed Vice Chairman of the Grenoble Institute of Technology Board of Directors in charge of Strategy, Finance, and Property Development. There will be no further changes to the org chart until a new Dean is appointed at the next board meeting in June.

Contact: alexis.sableaux@phelma.grenoble-inp.fr

IEE EDS colloquium presents twelve distinguished lecturers

On May 30, international learned society IEE EDS will hold a free, open-access colloquium at the Phelma auditorium. The organization will have its biannual board meeting on May 28 and 29, also in Grenoble.

The mini-colloquium, which runs from 8 a.m. to 1 p.m., will feature academic research scientists and industrial R&D professionals working in the US, Singapore, Taiwan, Japan, and Europe. They will address new advances in traditional research areas like the origin of telegraphic noise in CMOS structures, more recent emerging topics like the 3D integration of MEMS and photonics, resistive memory, quantum computing, transparent flexible electronics, and bioapplications.

Registration is required at: <http://eds.ieee.org/lectures.html?eid=190>.
Contact: pala@minatec.grenoble-inp.fr

Managing metal contamination just got easier

Each year, the Leti staffers in charge of the institute's 200 mm and 300 mm equipment request thousands of metal contamination tests for wafers. And up until last year, they had to manually enter these requests one by one. A couple of research scientists tasked a Ph.D. candidate with looking into a possible upgrade to GASEL, the software used to manage the requests. And their initiative paid off!

The new version of the software offers new, user-friendly features like bulk requests, and reusable, modifiable request templates. The request process is faster and the test results are batched and, therefore, easier to organize. Not to mention the direct savings due to the fact that the wafer carriers are used to full capacity, which means reduced cleaning. And, at €66 to clean one 300 mm carrier, the savings add up!

Contact: sylvie.barba@cea.fr

Leti gets new Carnot Label coordinator

Fabien Boulanger, a former lab supervisor, took up a new position as Carnot Label coordinator at Leti in early 2016. His first task was to complete Leti's new application file and send it to the French National Research Agency. The French government recently changed the rules for applying for the Carnot Label, which used to be granted for a five-year period but which is now a long-term agreement-based system with annual reporting requirements.

Mr. Boulanger will handle these responsibilities and will manage relations with the other Carnot institutes and the allocated funds, which pay for the majority of Leti's pump-priming research. Mr. Boulanger's former experience at Minalogic, where he was assigned from 2010 to 2015 to coordinate micro and nanotech programs financed by the cluster, will certainly come in handy!

Contact: fabien.boulanger@cea.fr

Interview

Marie-Noëlle Semeria,
Director, Leti

Leti

appeared in
the international
press 50 times
after CES 2016

How did Leti's trip to the Consumer Electronics Show 2016 go?

Leti and the startups that went along with the institute came away with several hundred leads—contacts with representatives of manufacturing companies working in all countries and industries. We also got picked up by the press a lot, with eight interviews and around 50 articles. Our goal for our first trip to the event was to raise our international profile. We achieved that objective and plan to return to Las Vegas for CES 2017.

What was your target audience this year?

Leti is well-known by companies in micro and nanoelectronics. However, not enough consumer electronics manufacturers know about Leti, particularly in the United States. They also don't know enough about the many applications for our technologies. We presented three demonstrator systems—all world firsts—and our startups to give these manufacturers an idea of what we can do for them in areas like augmented reality, wireless telecommunications, odor detection, air quality, and IoT.

So, would you say that startups are still a key part of your strategy?

Definitely, and in a number of ways. First, startups create added value and jobs. They are on the front lines with the markets and with marketers at manufacturing companies. They help us get our technologies to where the market needs them. We now hope to spin off five startups every year, which means identifying and supporting potential projects, even though we know that not all of them will make it to the finish line.

Contact: philippe.ruffin@cea.fr

Day by day

Diabeloop: "Pancreas 2.0" undergoes patient testing

Grenoble-based startup Diabeloop is currently testing the second version of its smart artificial pancreas on 45 insulin-dependent diabetics. The system is unlike anything currently available on the market, and includes a blood glucose sensor, an insulin pump, and a smartphone installed with a Leti algorithm and patient interface. The patient interface manages the link between the sensor and pump.

Leti has substantially improved the calculation speed of the algorithm, which bioregulates insulin delivery. With the version currently being tested, the model is personalized and adjusts to the patient's physiological data every five minutes. The previous version made the adjustment only once every 24 hours. Diabeloop hopes to release the second version of its artificial pancreas in 2017. Learn more at www.diabeloop.fr.

Contact: pierre.jallon@cea.fr

CEA is the world's most innovative research organization

The latest Reuters Top 25 Global Innovators - Government list placed the CEA first among the world's most innovative research institutions, ahead of the Fraunhofer Institute in Germany and JST in Japan. The list is based on ten rock-solid indicators, which include the number of patent applications filed, the percentage of patents granted, global reach, and the number and percentage of patents cited. The study that produced this list covered the 2008–2013 period and takes into account patents filed with WIPO.

CEA Grenoble's contribution to the results is significant; the Grenoble site is where 70% of the organization's patent applications originate. In 2015, CEA Grenoble filed 560 patent applications, mainly in microelectronics and renewable energy.

Contact: isabelle.rivat@cea.fr

Horizons

Exagan to set up manufacturing base in Grenoble

Exagan, which specializes in power components, has just invested in an Extron 200 mm epitaxy machine, currently being installed at a site near Grenoble. The investment comes less than two years after the company was founded. The automated, multi-wafer equipment will produce the company's innovative material, which combines gallium nitride and silicon using a buffer layer called G-Stack.

The components will then be sent to foundry at Germany's X-FAB before being assembled and tested by Exagan. This new phase anchors Exagan's position as a full-fledged manufacturer and confirms the company's choice of Grenoble for its home base—Exagan is headquartered at MINATEC and its manufacturing facility is nearby.

The products manufactured will be sent to customers for sampling and technology qualification, which Exagan is hopeful will lead to the company's first sales.

Contact: frederic.dupont@exagan.com

FIRST Tech Challenge robotics competition reaches new heights

The 5th French edition of the international FIRST Tech Challenge robotics competition, organized by Grenoble Institute of Technology, will be held on May 11–12 in Fontaine. Around twenty high-school-student teams are expected to enter their robots—built and programmed according to specifications provided before the event using supplies provided by the organizer.

As in previous years, the robots will have to demonstrate their agility as they pick up balls and cubes on the competition floor. In 2016 competitors will face a new challenge: a 30° incline the robots will have to climb before depositing the objects collected. And, to spice things up even more, the robots will also have to climb over three bars around twenty centimeters off the ground. Stay tuned to see how they did!

Contact: alice.caplier@phelma.grenoble-inp.fr

Horizons

Pint of Science brews up something for everyone

The Pint of Science Festival, to be held on May 23, 24, and 25, will invite scientists into local bars to present their research to the general public while sipping a tall, cold beer. This year marks the second edition of the festival, with fifteen events at downtown-Grenoble bars, the student union building (EVE) on the university campus, and at local science education center La Casemate. Topics covered will include neuroscience, geophysics, the social sciences, and new technologies.

MINATEC will be well represented with among others Leti's Tony Maindron talking about OLED microdisplays for augmented reality. A Ph.D. candidate from Tony's lab will introduce him. The 2016 Pint of Science Festival, founded in London in 2013, will take place simultaneously in twenty cities across France and in nine countries worldwide. Last year 24,000 people participated.

The full program will be available mid-April at: <https://pintofscience.fr/>.
Contact: janina.moereke@cea.fr

Blueberries could soon juice up smartphones

In a project for the Nano@school program, seven Grenoble high-schoolers made solar cells from fruits and vegetables. CEA-INAC Ph.D. candidate Cyril Aumaitre supervised the project, in which students extracted colorants from fruit and vegetable juices (spinach, blueberries, etc.) to make Grätzel cells, then characterize and model the cells before comparing their performance. And the outcomes were promising. A one-square-meter PV solar panel made from blueberry juice cells provides enough power to charge a smartphone in two hours.

At the end of January, two of the students presented their poster at an international youth science conference in Singapore, winning the Jury's Award—from a jury consisting of four Nobel laureates!

Learn more on the students' blog: <https://smartphoneetjusdefruit.wordpress.com/>.
Contact: cyril.aumaitre@cea.fr

Live from MINATEC

Clinattec innovates in fundraising

The Clinattec Foundation has set the ambitious fundraising target of €30 million by 2018 to pay for Clinattec's biomedical research programs in the prevention, diagnosis, and treatment of neurodegenerative diseases, motor handicaps, and cancer.

And the approach is innovative: Clinattec is appealing to businesses, foundations, and individuals to donate by June 30 of this year to qualify for matching funds from the Edmond J. Safra Foundation, already a Clinattec supporter. If the €5 million matching-fund commitment is reached, Clinattec will have raised a total of €10 million through this unique program, which kicked off at the end of February. The campaign committee is chaired by Alain Mérieux.

Contact: thierry.bosc@clinattec.fr

Smart Force Technologies makes using nanoparticles easier

Since 2006 LTM has been working on technologies to control the placement of nanoparticles on a surface. The lab's reputation has grown so much that it receives numerous outside requests—so many in fact that a startup, Smart Force Technologies, was set up by seven partners, including two of the lab's former Ph.D. students, in late 2015.

The company has already sold and installed its first piece of equipment for a customer in Sweden. The equipment uses a drop of colloidal solution which undergoes controlled evaporation on a lithographed surface whose pattern (size and spacing) determines the placement and grouping of the nanoparticles.

The researchers can now obtain thousands of identical objects, whereas before they had to use a microscope to search for the configurations they wanted. The advance will save days of work.

Contact: jcordeiro@smartforcetechnologies.com

Live from MINATEC

Leti and GlobalFoundries pave the way for 22 nm FD-SOI

The agreement signed by Leti and GlobalFoundries, the world's second-largest foundry, in 2015 is now in the implementation phase. The agreement is for 22 nm FD-SOI, a high-potential technology for IoT applications due to its excellent balance between performance, cost, and miniaturization. GlobalFoundries has started up production at its Dresden, Germany plant for sampling purposes. Leti is providing support scaling up the technology for mass production and qualifying the products. The ultimate goal is to enter full-scale production in 2017.

At the same time, Leti will integrate 22 nm FD-SOI into its Silicon Impulse circuit design service lineup, with the goal of encouraging the design of innovative products that could then be manufactured by GlobalFoundries.

Contact: jean-eric.michallet@cea.fr

First Grenoble young physicist meeting coming soon

Nearly 100 Ph.D. and postdocs in physics will meet in Grenoble on April 15 for the first-ever Grenoble young physicist meeting. The day-long event will feature talks on a variety of physics topics and a poster session. Dark matter expert Richard Taillet (CNRS) will address physics in science fiction movies; the other speakers will be Ph.D. and postdoc students.

The event is free of charge and will take place at the Espace Cowork center in downtown Grenoble. The concept was launched in 2013 in Paris, and similar events were held in Strasbourg and Sète last year. The French Physics Society and Grenoble Doctoral School in Physics are sponsoring the day, which is also backed by Fondation Nanosciences, STMicroelectronics, and INAC.

Learn more at <http://rjp2016-sfp-grenoble.neel.cnrs.fr/>.
Contact: janina.moereke@cea.fr

Phelma Polygone moves to new quarters

Grenoble Institute of Technology-Phelma permanently vacated its Polygone site on Avenue des Martyrs in February and has moved into its new quarters: the Phelma 2 MINATEC buildings, which were delivered in late 2015. The move took two weeks and was no mean feat; certain exam sittings and classes had to be moved to other locations like the school's Industrial Engineering Department on Avenue Félix-Viallet and GreEn-ER. The organizers of the move had a lot of considerations to juggle, but in the end nothing interfered with the school's academics.

The Polygone site wasn't vacant for long: ENSE3 and GEM have already moved in. In September, 400 GEM students will also use the facility while GEM finishes renovating a former Schneider Electric building located nearby.

Contact: philippe.serpellet@phelma.grenoble-inp.fr

Live from MINATEC

Partnership: MINATEC goes to Argentina

MINATEC and Argentina's Instituto Nacional de Tecnología Industrial (INTI) signed a partnership agreement on February 26 in Buenos Aires. INTI, which has several technical centers across the country, offers R&D and technological support services to businesses. It also provides both educational programs and certification services.

The partnership will help INTI acquire the know-how it needs to revitalize Argentina's manufacturing economy by facilitating the creation of micro and nanotechnology startups.

Additional agreements will soon be signed specifying MINATEC's contributions in areas like training, components, and microsystems design and prototyping. MINATEC-affiliated organizations, including Leti and CIME Nanotech, will also help bring INTI new skills and methods.

Contact: jean-charles.guibert@cea.fr

Professor Pierre Gentil dies at 70

Although some of MINATEC's younger researchers may not know who he was, Professor Pierre Gentil, who died in early March at age 70, played a major role in the development of microelectronics in Grenoble, elsewhere in France, and further afield.

A graduate of ENSERG, he conducted research in the area of transistor reliability and electronic noise. He taught at Grenoble Institute of Technology until 2013 and supervised a number of Ph.D. dissertations.

He was also the visionary behind CIME Nanotech, an organization home to resources that include Europe's largest teaching cleanroom. He headed CIME Nanotech from 1981 to 1994. He also founded CNFM*, a public-interest group made up of manufacturing companies and academic researchers. Professor Gentil will be remembered for the force of his convictions as much as for his generous spirit. He was loved by everyone who knew him.

*Coordination nationale de la formation en microélectronique et nanotechnologies

Contact: sorin@minatec.grenoble-inp.fr

Startup: Motion Recall targets consumer virtual reality

Motion Recall, established at the beginning of 2016 by four partners from Leti and Delta Drone, is developing a GoPro-type action cam with novel virtual reality features. Users can film activities like hang-gliding and mountain climbing and later interact with the video footage, choosing an alternative viewing angle, adding real or fictitious characters to the scene, changing a person's movements, and sharing the results locally or remotely.

This consumer product leverages a decade of research in motion sensing, virtual reality, biomechanical models, and data processing and fusion conducted at Leti and List. The startup has signed an R&D contract with the CEA for 2016. By end-2018, the company will count 60 employees and will release its first camera, to be priced between €690 and €790.

Contact: p.greve@motion-recall.com

Agenda

April 7, Phelma
High school students come to campus for Inno.Tech

Alexis.sableaux@phelma.grenoble-inp.fr

April 8, Maison MINATEC
Afterwork for junior scientists on connected objects

alexandrine.sadoul@cea.fr

April 14, World Trade Center, Grenoble
Minalogic International Business Meetings

<http://goo.gl/jK9qlm>

April 15, Cowork in Grenoble
Meet Grenoble's junior physicists

<http://goo.gl/ngYhGK>

April 28, University Campus (Weil Auditorium)
Lecture and panel talk on scientific excellence

With Jean-Pierre Bourguignon, President, European Research Council
<http://goo.gl/lQFXGh>

April 30, Phelma Auditorium
IEE EDS mini-colloquium on the state of the art in microelectronics

mouis@minatec.grenoble-inp.fr

May 9–10, MINATEC
9th PESM seminar

Plasma etch and strip in microtechnology
<http://pesm2016.insight-outside.fr/>

May 10, Paris
OMNT seminar
On-surface chemistry

beyond self-assembly, toward functional covalent networks
<http://surfchem.sciencesconf.org/>

May 10–11, Paris
IRT Nanoelec seminar

Accelerating technology innovation and value creation
anne.nogier@phelma.grenoble-inp.fr

May 11–12, Fontaine
5th First Tech Challenge

alice.caplier@gipsa-lab.grenoble-inp.fr

May 19, Maison MINATEC
GIANT afterwork

connecting scientists and entrepreneurs
Topic: energy
alexandrine.sadoul@cea.fr

May 23–25, Grenoble
Pint of Science Festival

15 science talks for the general public across Grenoble
<https://pintofscience.fr/>

June 6–July 8, MINATEC
2016 Grenoble Institute of Technology-Phelma Summer School

catherine.frexinis@grenoble-inp.fr

June 13–17, Aquakub Hotel, Aix-les-Bains
First Samson School

on nanosystems simulation and modelling software
<https://project.inria.fr/samsonschool2016>

Contacts

MINA-NEWS >

MINA-NEWS is published by MINATEC, 3 parvis Louis-Néel, 38054 Grenoble Cedex 9 France
Head of Publication: Jean-Charles Guibert; Editor-in-Chief: Julie Spinelli
Contributors: Isabelle Dellis, Leti, isabelle.dellis@cea.fr -
Nathalie Mathieu, Phelma, FMNT, Nathalie.Mathieu@phelma.grenoble-inp.fr -
Jérôme Planes, INAC, jerome.planes@cea.fr - Julie Spinelli, MINATEC, julie.spinelli@cea.fr -
Alexis Sableaux, Phelma, alexis.sableaux@phelma.grenoble-inp.fr
Editing: Benoît Playoust and Bénédicte Magne; layout and printing: Philippe Tur
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