MINATEC[®] NEWSLETTER



The MINATEC campus will soon get 11,500 sq. m of additional space with the completion of two new buildings: the Competency Center Building (BCC), which will house 550 staffers, and the 700-capacity Phelma Auditorium and Conference Center.

he Competency Center Building (BCC) will offer 10,000 sq. m of floor space on eight levels and will house some 550 staffers. CNRS teams will occupy the first floor, while CEA-Leti will move in to the rest of the building. The CEA-Leti executive suite will be located on the seventh floor. Interior finish work, partition walls, and signage are currently in progress to get the buildings move-in-ready by Q3 2015.

The BCC is worth a special mention as the Presqu'lle Scientifique district's first smart-grid-enabled building. In particular, the building's HVAC can be put into standby mode during peak electricity demand.

The new, 1,450 sq. m Phelma Auditorium and Conference Center will give the engineering school the perfect venue for commencement ceremonies and other major events—something the campus had been lacking until now. The ground-floor auditorium boasts 500 seats and a cafeteria (managed by the CROUS student catering service), and a total additional capacity of 200 for the two conference rooms upstairs. The primary use of the auditorium will not be for regular classes. However, its modular design can be adapted to meet a broad range of needs, including hosting outside events—a source of revenue that will help offset facility management costs.

In other construction news, ground will break on the nearby Software Design Center (CCL) in March. The 2,900 sq. m building will open its doors to some 140 Inria and CEA staffers in H1 2016.

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Feb. '15

Innovation

Getting closer to 60 GHz antennas for 5G networks

R esearchers from CEA-Leti have made some major advances on the 60 GHz antennas that will be required for tomorrow's 5G networks and mobile devices. First of all, to reduce costs, the physical interconnects between the antenna, chip, and casing have been replaced with an integrated component. The two parts of the antenna are connected using a cheaper and more efficient electromagnetic coupling.

And, to boost efficiency, focal lenses will be used to improve directional gain. The lens components will consist of networked planar antennas fabricated using printed technologies. The lenses will also be connected via coupling, i.e. without physical interconnects. The research was part of the EU-backed MiWaveS project (www.miwaves.eu) and will continue under new collaborative and industrial R&D projects.

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Artificial pancreas tested on 15 patients

n artificial pancreas developed by CEA-Leti and CERTID (a private-sector diabetes research center) was recently tested on 15 patients. The system consists of an insulin pump, a blood-sugar sensor, and a dedicated algorithm installed on a smartphone. The algorithm uses the patient's profile and activity (meals, physical exercise) to calculate the insulin dosage, which is automatically delivered by the pump.

Clinical testing demonstrated that the artificial pancreas was very effective at maintaining patients' blood sugar at the right levels. A joint lab between Leti and CERTID is currently being set up to pursue the development work. An initial prototype should be available by the end of 2015.

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Joint R&D lab to work on parallel-wired battery pack

B ordeaux-based EVTronic recently formed threeyear, €1.5-million a joint R&D lab with CEA-Leti. The lab's first objective is to develop a 30 kW parallel-wired battery pack demonstrator by the end of 2015. The battery pack would be hooked up to the grid and would provide additional electricity during peak electricity demand.

The joint lab is leveraging a CEA-patented battery architecture based on 3V cells (some wired to the system, others not). The architecture offers several benefits, such as eliminating the need for a UPS, boosting yield, improving heat dissipation, and keeping the battery running in the event of a faulty cell.

EVTronic is banking on the innovation to bolster its position on the electric vehicle charging and stationary electricity storage markets.

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Innovation

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Scientists use Synchrotron to look deep inside fuel cells

joint INAC-Liten research team used the Synchrotron's X-ray microbeam to create a 3D image of a fuel-cell membrane's nanostructure after 2,500 hours of use. What did they see? Namely, that physical wear on the material varies widely from one area of the membrane to another. The researchers correlated the differences in wear to the distance between each membrane sample and the electrodes or gas inputs.

The researchers have already used the results of their experiments at the Synchrotron to improve the design of future fuel cells. The results are also serving to enhance digital models in which the membrane had—until now—been treated like a coherent system. The research was carried out under the CEA's New Energy Technologies program and the findings were published in ACS Macro Letters.

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Galileo satellites could help drones fly solo

ould the Galileo global navigation satellite system one day be used to control drones? The EU-backed LOGAM project, in which CEA-Leti was a partner, looked at the feasibility of using Galileo, currently under construction, to control things like drones' pitch and roll. Specifically, the project set out to assess the suitability of an inclinometer accurate to within a degree based on an estimation of the phase shift between two low-cost GPS antennas.

The antennas were on-spec when tested on a phase-shift test bench developed for the research—but only in isolation. When integrated into the drone, their performance was hindered by noise reflecting off the drone's structure. The researchers came up with two potential fixes: either move the antennas further away from the drone's structure or rethink the antennas' design so that only the actual signal is picked up—minus the noise. A manufacturing company has already expressed interest in the test bench.

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Lanthanide-potassium complex as CO₂ reducer

Researchers from INAC successfully used a lanthanide-potassium complex as a catalyst to reduce CO_2 . The carbon-oxygen bonds were no match for the bimetal complex, and the carbonates and oxalates produced in the reaction can both be used to synthesize other chemical substances. Plus, they are released efficiently—meaning that they do not contaminate the catalyst, which can then be reused. Finally, the complex is also effective at reducing CS_2 (carbon disulfide).

This initial successful experiment is part of today's far-reaching research on CO_2 reduction. Scientists around the world are exploring various approaches in efforts to uncover the "Holy Grail"—the perpetual recycling of CO_2 into CH_4 (methane) or other hydrocarbons.

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Spintronics: Antiferromagnetic materials show their hidden talents

Antiferromagnetic materials are only used for their magnetic properties in today's spintronic systems—which is a shame! According to theory, at constant consumption, antiferromagnetic materials would be more efficient than ferromagnetic materials at generating spin-polarized currents, thereby reducing energy consumption.

To assess the potential of this new use of antiferromagnetic materials, you have to know the spin penetration length. This is no simple task given that the materials have zero net magnetization. Researchers at Spintec (a joint UGA, CEA-INAC, and CNRS lab) and Columbia University in New York managed to modify a low-ferromagnetic-resonance/spin-pumping technique and use it successfully on two commonly-used antiferromagnetic alloys, iridium-manganese and iron-manganese.

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M&NEMS gets first design kit

EA-Leti's M&NEMS technology, which has already been transferred to Tronics for use in the manufacturing of ultra-miniaturized sensors, recently got its own Cadence design kit. The kit offers up more than 110 Calibre rules and 11 automated drawing programs for sensor components like the pivot, mobile mass, comb drive, and electrode.

The kit also generates a predictive image of etching results to enable designers to validate the positioning of the etch release holes—a feature noteworthy enough to have been published in two articles.

The kit is being used for the first time ever by Polytechnic University of Milan in an EU project leveraging M&NEMS technology. CEA-Leti will also make the kit available to industrial partners engaged in R&D contracts with the institute.

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Gamma-ray imaging makes giant leap with semiconductorbased detectors

R esearch to enhance semiconductor-based (CdZnTe) gamma-ray imaging modules has finally untangled a major conundrum: how to increase sensitivity without lowering spatial resolution (and vice-versa).

Researchers from CEA-Leti and the CEA Physical Science Division (DSM) successfully improved both sensitivity and image definition using a low-noise read circuit and special signal processing. The module, which is standardsized and keeps a standard pixel pitch of 2.5 mm, delivers spatial resolution equivalent to 0.3-mm pixels.

This advance could be extremely useful in cardiac imaging, scintimammography, and radioactive source detection. Advanced-stage negotiations are underway with several manufacturers in France and other countries.

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Compact-antenna directivity gets a boost

n antenna's *directivity* indicates how well its radiation pattern can be directed in space. Directivity that exceeds theoretical limits is called *super-directivity*. CEA-Leti researchers recently experimented with super-directivity, using miniature antennas. And the performance they obtained was impressive!

The researchers placed several elements—coupled and charged with complex impedances—in the immediate vicinity of a radiating source. The charges were calculated using a special patented method. The result was significant directivity with antennas five times smaller than those employed in traditional techniques.

The development was part of the French National Research Agency-funded Socrate project. The project's industrial partners are now impatiently awaiting the completion of demonstrators for geolocation applications.

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Innovation

Two-photon microscopy generates 3D images of living tissue

he National Intravital Platform, part of France Life Imaging, a research institute tasked with setting up a coordinated national medical imaging network, has moved from the Institut des Neurosciences to Clinatec. The platform's most advanced imaging technique, two-photon microscopy, will effectively take Clinatec's medical imaging capabilities to the next level. How does it work? A pulsed infrared laser beam that can be tuned to between 680 nm and 1,300 nm is used to generate *in vivo* 3D images to penetration depths of up to 1 mm.

Clinatec will use the technique to study nanoparticles used in drug delivery, identify healthy and pathological neural networks, and generate 3D images of cell cultures useful in monitoring tissue regeneration. Two-photon microscopy can also be used to validate contrasts observed using other medical imaging techniques to highlight underlying biological phenomena.

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PCR could soon be used in hospital emergency rooms

ospitals currently perform their PCR (polymerase chain reaction) analyses at their central labs. It will soon be possible to complete the analyses right in hospital units like the emergency room. Researchers from CEA-Leti and Dr. Didier Raoult's team at IHU Méditerranée Infection in Marseille have joined forces to tackle the problem. The researchers from CEA-Leti are adapting their Flowpad microfluidics platform to automate PCR analysis of human samples like spinal fluid, blood, and saliva so that clinicians can perform the analyses themselves right in their hospital units.

The innovation will first target STDs, meningitis, and encephalitis, pathologies that represent more than a million tests a year in France alone. The researchers have filed for a patent for the system, which will be evaluated in late 2015.

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Day by day

Aryballe releases world odor map

renoble-based start-up Aryballe Technologies has created the Odoramap, an online world map of scents that users can view and enrich from any smartphone or tablet. Perfect if you want to get lost in the smells on the streets of San Francisco, breathe in the aroma of a high-altitude forest in Bolivia, or share the fragrance of your prize-winning flower garden (at least virtually!). An online wizard helps users describe the smells they want to add, locate them on a map, and even upload a picture of the location. The map has already compiled several hundred scents.

Aryballe Technologies will leverage this original initiative to bolster its online presence and raise its profile on the markets it plans to target. The company developed a portable odor-detection device for people suffering from olfactory disorders slated for release in 2016. Proof-of-concept testing has been completed and further development work is underway in partnership with researchers at INAC and CEA-Leti.

Contact: tristan@aryballe.com Discover the world map of scents at: www.odoramap.com



Phelma makes the cover of *l'Étudiant* magazine

Phelma students rushed to newsstands to pick up the December 2014-January 2015 issue of l'Étudiant magazine. Why the interest? Four of their very own were featured (relaxed and smiling!) on the cover—and for good reason. Phelma placed high in the magazine's 2015 engineering-school rankings.

The ranking analyzed France's 165 nationally-accredited engineering schools, with Phelma sharing the sixth slot for academic excellence. However, Phelma really stood out for research, ranking first in the fields of IT (in a tie with Ensimag, another Grenoble Institute of Technology school) and energy (tying with Mines ParisTech). And the school continues to move up the rankings for career placement, coming in seventh for IT and fourth for energy.

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Marie-Paule Schuhl takes the helm of Grenoble Institute of Technology communications department

ffective on December 15, 2014 Marie-Paule Schuhl succeeded Xavier Oster as head of the Grenoble Institute of Technology communications department. Schuhl and her seven-person department will support the school's international development strategy, including promoting the school's partnerships internationally. The development of the new Grenoble-Alps University will also be a major focus for the department.

During her tenure at Grenoble University's Joseph Fourier School, Marie-Paule Schuhl headed the Arcane Laboratory of Excellence (Labex) and coordinated relations between Grenoble's fourteen Labex programs. Her eclectic career path, which began with degrees in musicology and communications, includes an eight-year stint at Radio France's orchestra division and a strong track record in communications and media relations consulting.

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FEG-TEM ribbon-cutting held at CMTC

n January 19 researchers from across the Rhône-Alpes region attended a ribbon-cutting ceremony for the new FEG-TEM microscope on the St. Martin d'Hères campus. The microscope, manufactured by JEOL, offers spatial resolution of 2.3 Å in TEM mode and 2 Å in STEM mode. It also boasts powerful chemical imaging capabilities and is suitable for observing a broad range of metals, ceramics, and polymers.

The FEG-TEM microscope will be used about half the time for nanocharacterization. The rest of the time it will be used to develop new imaging methods—with nanometric resolution and large observation fields—that build on the advanced nanodiffraction tools developed under a joint research project between SIMaP and scientific instrumentation manufacturer NanoMEGAS.

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Interview

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Saïd Obbade, Materials physicist, Grenoble Institute of Technology's Phelma School of Engineering

Phelma expects to have signed partnership agreements with nearly 20 businesses by the end of this year

How many businesses have signed agreements with Phelma so far?

Since 2011, around ten businesses have signed or renewed partnerships with the school. At the end of 2014, missile manufacturer MBDA joined a circle of partners that includes names like Altran, DCNS, Safran, Elsys Design, Fresenius Kabi, Bull-Amesys, and Dolphin Integration. And our partnership drive is gaining momentum. By the end of this year, we expect to have nearly 20 corporate partners.

Why are partnerships so important to the school?

Strong relationships with manufacturing companies helps us keep pace with the latest technologies in use. This is crucial to giving our students the most up-to-date curriculum possible. Our partners provide us with privileged access to working professionals in energy, microelectronics, ICTs, and nanotechnologies to provide insights that shape our academic programs. They help us keep moving forward by pointing out areas where we can better align with the needs of today's business world.

And our partnerships also make it easier to provide our 360 graduates with internship and career opportunities each year.

What do the partnerships entail?

Our partnerships are based on a written agreement with a duration of three years. The corporate partner agrees to contribute to academic life at the school (teaching classes, giving guest lectures, attending Partners' Day, and conducting mock job interviews, for instance), hire our graduates, and support the school's endowment.

CEA Tech launches Communications and Innovation Services Division

n January 1, CEA Tech launched its Communications and Innovation Services Division (DOIC). The 40-strong division boasts Strategic Communications, Content and Storytelling, and Open Innovation units. This new organization will make better use of existing know-how and resources. The goal is to help CEA Tech put a more professional foot forward and broaden its scope of action.

One of the division's key responsibilities is hosting visitors. Another is creating product stories and demonstrators for the CEA Tech showrooms in Grenoble and at the regional branches. The division also boasts early-stage innovation competencies like creativity and usercentered design and innovation. The CEA's three open innovation labs (IDEAs Lab, Atelier Arts Sciences, and the Roger-Tallon Design Residency) will also report to the new division.

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Leti's Building 41 ready to take on next heat wave

he work to overhaul the cooling system at Leti's Building 41 that was completed in 2014 had to overcome several challenges. First of all, the temperature in the 6,000 sq. m of cleanrooms had to be maintained at a steady 21°C, even during a heat wave. Critical components like small-diameter hoses and under-sized tanks were replaced to increase the system's capacity to 400 kWh. An additional 400 kWh cooling unit was installed and is currently being hooked up to the rest of the system.

The overhaul was required to meet the demands of the cleanrooms' growing fleet of heat-intensive 300 mm equipment. The building's cooling system must be capable of regulating the temperature of the 300,000 cu. m/hour of outside air that is injected into the building. The previous system began showing its limitations when outdoor temperatures exceeded 32°C. Building 41 is now ready for whatever weather next summer has in store.

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Horizons

CEA Tech travelling showroom at Maison MINATEC

he CEA Tech travelling showroom will be at Maison MINATEC until February 13. The modular structure offers between 20 sq. m and 150 sq. m of exhibit space, was designed to be easy to put up and take down, and can be transported to different venues by truck. The showroom has already made stops in Toulouse, Grenoble (for the Semicon Europa trade show), Paris, and Metz.

The full showroom offers up 28 technology demonstrators highlighting the R&D work coming out of CEA institutes Leti, Liten, and List. Designers were brought in to help with the development of the demonstrators, which include immersion experiences, video footage, and interviews with CEA partners.

CEA Tech is taking full advantage of this exciting resource to reach out to manufacturing companies across France. Replica showrooms will also be built and set up in Nantes, Bordeaux, Toulouse, and Metz, where the CEA set up its regional offices in 2013.

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CEA Tech "startup cafés" for a jolt of entrepreneurial energy

EA Tech startup cafés, which launched last spring, are now held the first Thursday of every month from 1 p.m. to 2 p.m. in the auditorium across from the showroom (Building 51, room D122). January's meeting focused on support programs for entrepreneurs; the February 5 meeting will give participants an opportunity to explore way to come up with ideas for their future start-ups.

Any CEA staff member seeking to learn what it is like to be an entrepreneur is welcome to attend the startup cafés. The goal is to provide a friendly place where participants can share their experiences and ask any questions they have. The format is simple. The facilitator gives a quick overview of the topic at the start of each meeting; two or three speakers take the floor, leaving time for Q&A with the audience; and the meeting wraps up over coffee.

Horizons

Phelma student duo develops innovative 3D display

Pierre Schefler and Mathieu Bertrand, both in their third year at Grenoble Institute of Technology's Phelma Engineering School, have developed a cube-shaped 3D display as part of a class project. The cube, named "Cubicle," boasts ten control buttons and 729 LEDs that can represent forms in space, and, because the points of light are visible to the naked eye, the images can be displayed in 3D.

The Cubicle prototype was presented at a crystallography trade event in Montreal this summer and here in Grenoble during the 2014 National Science Week. Feedback from crystallography professionals has been very encouraging so far, and a few dozen have expressed interest in purchasing the product. The student duo has plans for a small initial production run in 2015 to fill these orders. Schefler has also obtained student entrepreneur status, which will give him the flexibility he needs in his course schedule to continue to develop the product.

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Charitable giving: Clinatec to raise €30 million

Inatec set up a foundation in November 2014 with the goal of raising €30 million in charitable donations within five years. The funds raised will pick up where Clinatec's other resources—government subsidies and revenue from R&D contracts—leave off, enabling the center to pursue its groundbreaking work getting innovative treatments for spinal-cord injuries, Parkinson's, and cancer to patients faster. Clinatec's supporters include the Edmond J. Safra Foundation, Fondation EDF, and Crédit Agricole, which sent an emailer out to its customers across the Rhône-Alpes region (Isère, Drôme, Ardèche, Rhône, Savoie, Haute-Savoie, Loire, and Haute-Loire) promoting the Clinatec fundraising drive. Private individuals and businesses of all sizes are welcome to give. Donations can even be made online on the Clinatec website.

Charitable giving to research organizations is a relatively new phenomenon in France. However, the practice is common in other countries, where institutes like Fraunhofer, EPFL, and CSEM have set up foundations to support their work.

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Iskn raises \$2 million in fresh capital

renoble-based start-up iskn raised \$2 million in fresh capital late last year from four investors—Partech Ventures, CEA Investissements, Kima Venture (in which Free CEO Xavier Niel holds a stake), and Pascal Cagni (General Manager and Vice President of Apple EMEA from 2000–2012).

A few months ago iskn moved from its offices at MINATEC to a new location in downtown Grenoble; the company's headcount has grown from three to sixteen in the space of a year.

The company has delivered more than 2,000 units of its flagship "slate," which can be purchased directly on the iskn website. In a few months, the product will also be available through other online retailers like Amazon and FNAC. Meanwhile, iskn's three-year R&D contract with Leti is expected to lead to the release of a new product by the end of 2015.

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Live from MINATEC

CEA promotes careers for women in science

n February 5, 2015 a group of 72 high-school students from the nearby towns La Mûre and Voiron will come to MINATEC for the fourth annual session of *Scientifique, toi aussi !* [You, too, can be a scientist!] to learn about careers in science. This year's edition will focus on women in science. Astrophysicist Isabelle Vauglin will give a talk on women in science and the students will get to meet with technicians, engineers, research scientists, managers, and communications professionals of both genders during a speed-networking meeting. Participating professionals will have three minutes to talk about their jobs, using a prop that illustrates what they do. The day will continue with CEA lab tours.

Live from MINATEC

Atelier Arts Sciences polarizes light at first-ever *Rêve Party*

n March 3, the Atelier Arts Sciences will organize its first-ever *Rêve Party* [Dream Party] in conjunction with Minalogic and Cluster Lumière. The event will explore the topic of light. Solium, which manufactures solar-powered light fixtures, and Oled4life, which makes organic LEDs for signage and control panels, will present their businesses. Atelier Arts Science artist-in-residence Thomas Pachoud will unveil his original work *Hyperlight*. Finally, the Theoriz Crew, a Lyon-based studio that earned kudos for its installation at the city's legendary Festival of Light, will also be on hand.

The goal is to offer a novel quarterly event (from 6:30 p.m. to 9 p.m.) to bring people in to the Atelier Arts Sciences from artists and other creative professionals to scientific researchers, entrepreneurs, and other local stakeholders to explore their shared interest for a particular topic and perhaps even come up with innovative new ideas.

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FIRST Tech Challenge to come to Lyon and Paris

n May 6 and 7 young people aged 12 to 18 will flock to the Grenoble area for the fourth edition of the international robotics competition, FIRST Tech Challenge (FTC). The number of teams registered is up to 20 from 17 last year. This year's cohort includes ten teams from the Lyon and Paris areas—a first. Up until now, the FTC had only attracted participants from Grenoble and Valence. This is a particularly encouraging development for the organizers, who are hoping to see the competition catch on across France.

The teams are tasked with building robots that go headto-head during the competition. The event is sponsored by PTC and National Instruments and is backed by the Rhône-Ales Regional Council, the Greater Grenoble Intermunicipal Authority, and the Grenoble Institute of Technology Foundation.

For more information or to sign up: www.ftcfrance.com Contact: alice.caplier@gipsa-lab.grenoble-inp.fr

High Tech U to run two sessions in 2015

he eleventh edition of the European version of the American High Tech U program (a SEMI initiative), will consist of two three-day sessions held in March and April. The objective of High Tech U is to raise high-school sophomores' awareness of careers in microelectronics through a total-immersion experience. The students will spend a day at MINATEC, where they will build a circuit at the CIME Nanotech platform and "bake" a meringue using liquid nitrogen. They will also tour the CEA technology showroom.

A total of 72 students from four Grenoble-area high schools will participate in this program backed by STMicroelectronics, Soitec, Air Liquide, Applied Materials, IBMFrance, CEA-Leti, and Grenoble Institute of Technology.

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Live from MINATEC Maison MINATEC on the move

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he year's start will be marked by a number of moves into and out of Maison MINATEC. The department in charge of patents and contracts at the CEA Tech Transfer Division (around 60 people) will move to Building C1 located on the CEA campus. Maison MINATEC is required to keep a semi-open-door policy to accommodate the many special events hosted there. The move will give this particularly sensitive department the benefits of a more secure location closed to visitors.

The move will free up space for the CEA Strategic Marketing and Market Research (SMS-BEM) Department, which is already located at Maison MINATEC. The department will occupy a space better suited to its needs—and will also be able to bring CEA-Leti and Inria teams to Maison MINATEC and its extension.

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Challenge First Step 2014: Where are they now?

n December 4, 2014, four budding entrepreneurs presented their projects to the Challenge First Step selection committee, tasked with assessing the projects' maturity and determining whether or not to grant them additional resources to fund their development plans over the next six months.

The LINC project (development software for connected objects) was deemed ready for the incubation phase. SIPSEP (a portable, real-time testing system for infectious diseases) was granted around €160K to develop a model for STDs and meningitis. USENS (Raman mini-probe for the detection of trace amounts of substances in liquids) got nearly €140K to build and test a demonstrator.

A special guest, the CEA Physical Science Division, was on hand to back a post-doc project to develop an innovative low-cost process for producing silicon nanowires. The committee gave some encouraging feedback and the project must now undergo additional development work to get ready for the start-up phase.

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Agenda

February 3, Maison MINATEC Leti–DOPT Annual General Meeting sylvie.fournier@cea.fr

Until February 13, Maison MINATEC CEA Tech Travelling Showroom

philippe.brincard@cea.fr

February 4, Maison MINATEC Leti–DACLE Annual General Meeting armelle.dekerleau@cea.fr

February 5, Maison MINATEC Scientifique, toi aussi ! (4th edition) pauline.martin2@cea.fr

February 5, 1 p.m.–2 p.m., Building 51 Auditorium Startup cafés: Coming up with an idea for your start-up startupcafe@cea.fr

February 12, LetiDayParis at Techinnov, Paris-Orly http://www.techinnov-orly.com

February 23, Maison MINATEC Leti–DTSI Annual General Meeting fabrice.geiger@cea.fr

February 26, Maison MINATEC Leti–DCOS Annual General Meeting josette.mounier@cea.fr March 3, Atelier Arts Sciences First-ever Rêve Party (theme: light) marie.brocca@cea.fr

March 6, Maison MINATEC 7th Junior Scientist and Industry Annual Meeting

Ph.D. candidates and postdocs, introduce yourself in a 15-second video! http://www.jsiam-giant-grenoble.org/

March 9–13, Alpexpo DATE 2015, Design Automation & Test in Europe http://www.date-conference.com

March 11–13, Phelma-MINATEC

ERC BIOMIM 2015 - Natural and biomimetic materials: from biophysical studies to application in tissue engineering http://erc-biomim.grenoble-inp.fr

March 16–18, Maison MINATEC LabEx MINOS Workshop http://labex.univ-grenoble-alpes.fr/actualites/

http://labex.univ-grenoble-alpes.fr/actualites/ 2014-07-10/decouvrir-labex-minos-wokshop

March 18–20, World Trade Center Grenoble

SFRMBM (the French society for magnetic resonance for biology and medicine) 2015 Congress http://sfrmbm2015.sciencesconf.org

MINA-NEWS

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