



EDITORIAAL

Een nieuwe Ministeriële Conferentie

Nauwelijks zijn de resultaten van de vorige Ministeriële Conferentie bekend of de voorbereiding van de volgende komt eraan. Dit was ook aangekondigd: om over de toekomst van het Ariane programma een definitieve beslissing te kunnen nemen was een nieuwe conferentie nodig. Het blijkt nu ook dat het Agentschap zelf een nieuwe Ministeriële Conferentie grotendeels daartoe wil beperkt zien. Naast Ariane zou men ook nog over Exomars kunnen praten en over de relatie met de EU maar dat is het dan.

Bij deze voorbereiding wil VRI alvast een eigen standpunt naar voor schuiven. Vooreerst zou het mogelijk moeten zijn om andere mogelijkheden die zich het voorbije jaar aandienden te behandelen. Zo wordt voor aardobservatie aangedrongen op een beperkt programma. We vrezen wel dat hiervoor door de ESA directie zelf weinig ruimte zal worden gelaten.

Indien de hoofdbrok Ariane blijft is het voor de Vlaamse industrie niet onmiddellijk een Ministeriële Conferentie met een zeer grote inzet. Onze betrokkenheid in dit programma is beperkt en het is voor VRI nooit een prioriteit geweest. Vanzelfsprekend staan wij open voor de mogelijkheden die dit programma biedt en we begrijpen dat Ariane voor onze collega's in Brussel en Wallonië zondermeer cruciaal is. Maar de belangrijke deelname die België in Ariane heeft moet op zich voldoende zijn om deze mogelijkheden voor iedereen hard te maken. Het kan ook niet dat de moeilijke evenwichten die vorig jaar bereikt werden in het gedrang gebracht worden. Wij hopen dan ook dat de toekomst van het Ariane programma wordt veilig gesteld met het opstarten van een Ariane 6 programma of het uitbouwen van Ariane 5 maar het kan niet zijn dat dit leidt tot een kannibalisme binnen de Europese of Belgische ruimtevaartveloppes.

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Imec, KULeuven and AIST report new process that paves the way toward increased mobility of beyond 10nm MOS devices

ensile-strained GeSn MOSFET devices on Si developed using solid phase epitaxy

KULeuven, imec and AIST have developed a solid phase epitaxy process to integrate GermaniumTin (GeSn) metal-oxide semiconductor field-effect transistor (MOSFET) devices on silicon. For the first time, operation of depletion-mode junctionless GeSn pMOSFET on silicon was demonstrated, an important step toward achieving tensile strain in MOSFET devices, and increasing their mobility.

To improve performance in next-generation scaled complementary metal-oxide semiconductor (CMOS) devices, researchers are exploring the integration of novel materials with superior electron mobility. This includes GeSn, a promising semiconductor candidate as channel material, due to its superior physical properties. GeSn enables increased switching speed of MOSFET devices and can be used in fast optical communication. While most prototype GeSn channel MOSFETs are fabricated on Ge substrates, silicon integration is preferred for CMOS compatibility.

However, epitaxial growth of GeSn on silicon substrates poses several challenges, including limited solubility of Sn in Ge (0.5%), its compositional fluctuations, Sn segregation, and large lattice mismatch (>4%). Therefore, it is critical to suppress these effects to obtain high performance devices with GeSn layers.

Researchers from KULeuven, imec and AIST developed a solid phase epitaxy process, achieving ultrathin (>10 μ m) single-crystalline GeSn layers on silicon substrates showing tensile strain, attractive for strain engineering of Ge channels. Furthermore, it reduces the difference between the direct and indirect band transition, resulting in acquisition of a direct band gap group IV material. Lastly, due to its non-equilibrium deposition conditions, the new method enables the development of GeSn with high Sn concentrations .

By decreasing the channel thickness with reactive ion etching (RIE) from ~30 to ~10 nm, the researchers improved the on/off ratio by more than one order of magnitude. Additionally, hole depletion in the ultrathin (~10 nm) GeSn layers on silicon resulted in good transfer characteristics with an on/off ratio of 84. In the future, research will focus on optimizing the GeSn MOSFET on silicon devices to further increase the channel mobility.

More details on these results will be presented at the Solid State Devices and Materials (SSDM) conference in Fukuoka, Japan on September 25, and will be published in Applied Physics Express 2013.

Entegris and Imec Collaborate on 3D Wafer Handling and Shipping Challenges

Entegris, Inc. (Nasdaq: ENTG), a leader in contamination control and materials handling technologies for highly demanding advanced manufacturing environments, and imec, a world-leading research center in nanoelectronics, announced they are collaborating to advance the development and broaden the adoption of 3D integrated circuits.

3D IC technology, a process by which multiple semiconductor dies are stacked into a single device, is aimed at increasing the functionality and performance of next-generation integrated circuits while reducing footprint and power consumption. It is a key technology to enable the next generation of portable electronics such as smartphones and tablets that require smaller ICs which consume less power.

One of the key steps in 3D IC manufacturing process entails thinning semiconductor wafers while they are bonded to carrier substrates. Handling such thinned 3D IC wafers during the production process can result in wafer breakage, edge damage, and particle generation. A standardized, fully automated solution that supports the handling of multiple types of wafers would result in a significant cost reduction and pave the way toward further development and scaling of 3D IC technologies. Imec and Entegris are working on creating a solution to safely transfer and handle multiple kinds of 3D IC wafers without the risk of breakage and other damage that may occur during the 3D production process.

"We are excited to work with the imec team, which is a key research center leading technology innovation for the semiconductor industry," said Bertrand Loy, president and CEO of Entegris. "Our current collaboration is aimed at leveraging our wafer handling expertise and technology to reduce contamination and breakage by applying full automation to the handling of thin wafers during 3D wafer production. This project builds on our previously completed work with imec to develop dispense and filtration methods to reduce bubble and defect formation during the dispense of material that is used to temporarily bond 3D wafers to carrier substrates," said Loy.

"This collaboration with Entegris aims at developing a solution toward fully automated handling of multiple types of 3D IC wafers," stated Eric Beyne, director of imec's 3D integration research program. "Such a general solution would imply a significant reduction of the development cost, which is key to the realization of a scalable and manufacturable 3D IC technology."

To learn more about Entegris' comprehensive suite of filtration and wafer handling solutions, see Entegris at booth 176 at Semicon Taiwan, September 4-6, 2013. For more information, please contact Entegris at: marketing@entegris.com. Join our Semicon Taiwan event on Facebook to stay connected with the latest announcements before and during the show.

Learn more about imec's 3D integration research at the Taiwan edition of the IMEC TECHNOLOGY FORUM, organized in conjunction with Semicon Taiwan and in collaboration with SEMI on September 4, 2013 at the Taipei World Trade Center Nangang Exhibition Hall, Taipei, Taiwan. For more information: www.itf2013taiwan.be

MICRON and imec extend strategic research collaboration

Imec, a world-leading nanoelectronics research institute, and Micron Technology, Inc. (NASDAQ: MU), one of the world's leading providers of advanced semiconductor solutions, announced today a three-year extension of their strategic research collaboration on advanced CMOS scaling and expanded on additional joint research efforts.

Imec's core CMOS program engages most of the world's premier semiconductor companies. Within this program, imec scientists do collaborative R&D in an open innovation mode on new materials, concepts, and process steps and integration for the sub-10nm node. As the results mature, they are fed into the companies' own process and product development.

"We are elated to further extend and broaden our collaboration with Micron that started in 2006 when the company joined our core CMOS and flash memory research programs," stated Luc Van den hove, president and CEO at imec. *"Having a world-leading memory company as Micron as a partner brings valuable knowledge to our research. Our unique research environment harnesses the collective expertise and knowledge of the entire value chain, bringing together foundries, IDMs, fabless and fablite companies, packaging and assembly companies, and equipment and material suppliers to drive innovation and the development of new, competitive products."*

"We look forward to continuing our partnership with imec on technology R&D, exploring new device concepts and new materials that have the potential to enable advanced memory solutions for Micron in the future," said Scott DeBoer, Micron Vice President of Research & Development."

Imec Selected as a TSMC Value Chain Aggregator in India

Building on their six-year VCA collaboration in Europe, imec will provide comprehensive access to TSMC technologies for the design and production of ASIC products

Leuven (Belgium)—November 13, 2013 – Imec announced today an extended cooperation agreement to become a TSMC Value Chain Aggregator (VCA) in India. Under the terms of the agreement, imec can offer full mask tape out and wafer production to Indian fabless semiconductor companies, system and design houses. Customers in the region will gain enhanced technical support and fast access to TSMC foundry services through the new collaborative agreement with imec.

ASIC design for TSMC process technologies requires access to TSMC technology information, such as transistor models, standard cell libraries, memory compilers and IP blocks, among other components. For prototyping of the designed ASICs, customers can access TSMC Cybershuttle services through imec. In addition Customer-Owned Tooling (COT) services are available, such as access to TSMC technology files, library licenses, design support, GDSII submission, and preparation for production. Imec also offers its own digital backend design services and has extensive experience in qualification, packaging, test, and failure and yield analysis to further facilitate the process of bringing qualified ASIC solutions to the market.

“Entrepreneurial ASIC teams can increase their knowledge while accelerating their time-to-market success by tapping into the resources of TSMC and imec,” said Sajiv Dalal, Vice President, TSMC North America. *“We have a long history with imec of collaborating on design and manufacturing, making this combination an expert support team for emerging new players who want to bring their innovations to the world.”*

“Over the past six years, imec has successfully supported more than 200 companies in Europe in designing and producing qualified ASIC solutions as a TSMC VCA in Europe, and earlier this year, we extended our VCA activities for TSMC in Brazil,” said Steve Beckers, general manager imec services at imec. *“Through our local representation in Bangalore (imec India), we are now reaching out to the Indian market to further extend our VCA service for TSMC. Combining imec’s and TSMC’s strengths, we are well-positioned to support market growth of Indian semiconductor and design companies, while also spearheading research advancements in the region to drive further innovation.”*

Through its expanded presence and role as TSMC’s VCA in India, imec can increase its customer base, taking advantage of the associated economies of scale. The partnership will also allow for better cooperation between imec and Indian companies as well as research institutes in applicable research domains, such as sensors, low power electronics, imaging, body area networks, energy devices and core CMOS technology.

Imec and Holst Centre Introduce Evaluation Kit for Ultra-Low Power ECG Analog Front-End

Evaluation Kits Facilitate Development of Next-Generation Remote Healthcare Solutions, life style, and medical applications

World-leading nanoelectronics research centre imec and Holst Centre, an open-innovation initiative by imec and TNO (NL), today announced the availability of evaluation kits for their proprietary ultra-low power ECG analog front-end chip for ambulatory cardiac monitoring. The evaluation kits enable device companies to evaluate imec and Holst Centre's extremely robust ultra-low power technology on their own portable cardiac monitoring solutions.

The ultralow power ECG analog front-end chip provides ECG monitoring at extremely low energy consumption (20uW per channel at a supply voltage of 1.2μV). The chip monitors up to 3-lead ECG signals in compliance with ANSI-AAMI and IEC standards for ECG monitoring. The chip also monitors tissue-contact impedance to provide real-time information on the electrode contact quality and lead-off detection.

The evaluation kit provides all necessary hardware and software to evaluate the characteristics of the chip, and includes the above ECG front-end chip and an evaluation board to measure the performance of the chip. The kit is fast and easy to set-up, and can be easily customized to meet the specific solution of the customer.



*Evaluation Kit for Ultra-Low Power
ECG Analog Front-End*

"Imec and Holst Centre's technologies for wireless sensor systems deliver the promise of a better and more comfortable, time and cost-efficient method for remote personal healthcare," stated Chris Van Hoof, Human++ program director at Holst Centre/imec. "We are confident that our ECG analog front-end chip meets the specifications of the industry, to wirelessly record ECG signals with state-of-the-art medical accuracy and reliability, and with extremely robust and power efficient data processing and data transmission to enable long-term functioning on only a small battery. With our evaluation kits, we continue to provide value for our customers, enabling them to test the technology tuned towards the specific solution they are envisioning."



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ARQIVA selects NEWTEC to upgrade modular fleet

Newtec's channel partner Sematron agrees major framework deal for Newtec's M6100 Broadcast Satellite Modulators which will be used in Arqiva's DTH equipment refreshment program.

Arqiva has used Newtec products for many years because of their operational reliability and advanced capabilities, said Geoff Smith, Principal Engineer at Arqiva. Specifically, the M6100 provides now steeper roll-off, RF Carrier ID (according to the new DVB-CID standard), built in transport stream analyzer and automated pre-distortion.

Smith continued: *"Thanks to the support provided by the Sematron Technical Team, Arqiva was able to fully evaluate the new product and will be able to take advantage of its ability to upgrade efficiently for future needs. In addition, the short lead time offered by Newtec has been a key factor in the decision to go with the M6100."*

Thomas Van den Driessche appointed Newtec's new Chief Commercial Officer

Newtec aims to further strengthen its commercial and customer orientated focus by appointing Thomas Van den Driessche as its new CCO

"I have eagerly accepted this challenge as these are exciting times for Newtec. We are transitioning from a "medium size satcom vendor" to one of the major satellite technology players. I am sure that there will be great opportunities ahead for Newtec to continue to lead the satellite industry with the development of innovative technologies enabling our customers to achieve their business objectives", Thomas Van den Driessche said.

Onward and upward for NEWTEC in 2014

There was a lot of buzz around 4K TV this year, also known as Ultra High Definition Television (UHDTV) and we were involved with almost all of the major demonstrations around the world. These included with both Eutelsat and Intelsat at IBC 2013. The latter of the two demonstrated the world's first live sports match played out straight to the exhibition floor in 4K. Other demonstrations during the course of the year included with SES and Canal+ in Spain and Measat at BroadcastAsia in Singapore. All of these prove that the transmission chain is ready and able as soon as demand is there for this new technology. Of course we have also been active in improving efficiency for the entire industry to benefit.

Serving and Surveying the Industry

This year has been about developing new satellite transmission standards and helping the industry to reduce interference. We have been central to this alongside partner organizations DVB and the Satellite Interference Reduction Group (IRG).

S2 Extensions: How Will the Industry Take Them?

Kick-started by Newtec a year ago, key players in the satellite industry are calling for a satellite transmission standard, specifically for professional satellite contribution links, which would extend the existing DVB-S2 standard. The Newtec S2 Extensions include smaller Roll-Offs, advanced filter technologies, higher efficient MODCODs, more MODCODs fine-tuned for linear and non-linear operation, higher modulation (64APSK) and wideband (72 Mbaud). These extensions have been contributed to the new evolution of the DVB-S2 standard and have already been implemented on Newtec's modulators, modems and hubs. These S2 Extensions boost the satellite link efficiency up to 20% in Direct-To-Home networks and 37% in other professional applications compared to DVB-S2 – even up to 64% when using 72Mhz transponders.

But how quickly will the industry transition to the new standard? Well the results are in and our industry survey findings suggest that more than half will switch within one year of release. This is an eye opener and there are many more interesting results available online at our Industry Blog. We have also been recognized for an 'Outstanding Achievement' award at the ASBU BroadcastPRO Awards for the pivotal role we played in developing candidates for the new DVB-S2 extension. By continuous innovation to increase efficiency of communications over satellite, and therefore lowering both CAPEX and OPEX, satellite operators, service providers and broadcasters are now able to launch new services in a profitable manner. This benefits the entire satellite ecosystem and by extension end users around the world.

Carrier ID: How bad is this Interference?

Next to mention is, that we have turned our attention to mitigate satellite interference which has not just started now. Way back in 2011 we have given our unreserved support for the standardization and adoption of industry-wide counter-measures to combat interference. Since then we have implemented Carrier ID in our equipment and brought the industry together by holding several sessions around the world increasing the awareness. In July we joined forces with the Satellite Interference Reduction Group (IRG) to poll the industry about Carrier ID (CID). The headline results from our industry survey was that 93% of respondents suffer from satellite interference at least once a year, with more than half suffering at least once a month and 17% continuously in their day to day operations. This is again a significant finding for the industry and the rest of the results are available online in our Carrier ID Demystified e-book.

Growth in Multiple VSAT Markets

Newtec has signed a number of new deals around the world with different service providers and satellite operators operating in Ku or Ka band. Early on in 2013 Gazprom Space Systems (GSS) chose Newtec in a competitive tendering process. In the same month RuSat, a satellite service provider for enterprise customers, Internet service providers, and government agencies in Russia, signed a deal too.

In the United States we were selected by California-based X2nSat to provide the equipment for a new B2B broadband and SCADA service.

Over in Africa we have become a key technology partner for NigComSat as it sets out to achieve its mission to provide cost-effective satellite broadband services to Nigerian consumers and SMEs, with planned services for West Africa and we also signed an agreement to provide a VSAT Broadband Hub and thousands of VSAT terminals to Liquid Telecom, the leading independent data, voice and IP provider in Africa.

In the European market we have played an important role in further expanding the SES Broadband Services offering, which is Europe's largest satellite broadband network. And in the Middle East Bentley Walker, one of the world's leading service providers for broadband satellite Internet, chose Newtec in its service coverage extension towards Libya using Newtec's Ka-band VSAT broadband platform on Avanti's HTS Hylas2 satellite.

And last but not least, Eutelsat's IP Easy broadband service which was launched for the African region in 2012, is now also bridging the digital divide through the Caribbean footprint of the EUTELSAT 8 West A satellite powered by Newtec's broadband system.

An Important Year for our Government and Defense Activities

During the year we were invited by several organizations to share our experience in the Government and Defense market. For example, we have presented worldwide in conferences or via our own seminars how to fit bandwidth hungry video applications in times of sequestration. We have signed a Basic Ordering Agreement (BOA; N°13349) with the NATO Communications and Information Agency (NCIA) to provide an accelerated and cost effective acquisition method for Commercial Off The Shelf (COTS) hardware, software & services.

To mention one NATO project highlight during 2013, we have injected enhanced capabilities to a network serving troops in the Middle East, which is part of a major collaboration with US commercial Internet service provider SniperHill.

Backhauling Africa

Still with very poor terrestrial infrastructure, Africa is proving to be a key market for Newtec – particularly for network trunking and backhaul. A new partnership with Somalia-based Talia means a communications backbone infrastructure for the country in place based on our FlexACM® technology. A second major project for us was with SES to implement our S2 Extensions technology. New-generation modems are boosting the performance and efficiency of the SES-5 satellite backhaul infrastructure.

Newtec Promotes From Within and Appoints New Senior Team Members

With an increasing Newtec product portfolio and a growing customer and partner base, comes a growing need to strengthen the leadership of our global commercial team. I am confident that our new leaders will guide our worldwide team with flair and bring lots of success for us, our partners and customers.

Former Technicolor, Alcatel-Lucent, and ECI Telecom executive Mario Querner has joined as our new VP Asia. He has more than 25 years of international business experience in telecommunications and media, working in both Europe and Asia.

Coming from the senior internal team our former Director, Market Development and Broadcast Product Marketing, Steven Soenens has been promoted to VP Product Management and is now responsible for product strategy and management. In his career, Steven has taken responsibility for worldwide product strategy and product management of video solutions within Cisco Systems, Scientific-Atlanta and BarcoNet.

Thomas Van den Driessche has been appointed Newtec's new Chief Commercial Officer leading the company's global sales team and marketing strategy. Thomas having joined us as a Regional Sales Director for Europe in 2007 and after holding several positions in the company since then, including VP Market Strategy, brings vast experience in sales, marketing and management.

New Broadcasting Technologies and Major New Deal

This year we launched our latest MDM6100 Broadcast Satellite Modem at NAB 2013, a next generation DVB-S, DVB-S2 and S2 Extensions modem specifically designed for broadcast applications. It has already been recognised by the industry as being a key new technology.

Major Industry Gong

In March, the World Teleport Association (WTA) awarded the Newtec M6100 Broadcast Satellite Modulator with the prestigious accolade of Teleport Technology of the Year. The judges praised the new technology for providing the greatest contribution to the business and operational success of teleports by lowering costs, increasing efficiency, enabling new capabilities and providing access to new markets. The M6100 is also ready to support the upcoming S2 Extensions and the DVB-CID standard.

In the Broadcast Sector

Since 1985, our dedicated team of specialists has set industry standards with the most efficient, scalable and economical technology solutions. New challenges and customer needs offer opportunities to explore new boundaries. This empowers us to work even harder, helping customers to perform their best so that, together, we can make the world a safer, more informed and connected place.

As a result, more than 3 billion people watch TV every day thanks to our technology.

During 2013 we won a number of large broadcast contracts including one with Arqiva, the communications infrastructure and media services company. It has selected the M6100 to upgrade parts of its network. Newtec's channel partner Sematron agreed the framework deal which will upgrade Arqiva's DTH equipment refreshment program. On the topic of channel partner's we have signed up over 90 certified global partners operating in the satellite communication industry, covering over 100 countries across Europe, the Middle East, Africa, Asia, Australia, and North and South America.

We have also extended our very successful Multimedia Exchange Network over Satellite (MENOS) contract with the Arab Sates Broadcasting Union (ASBU) in a new multimillion euro deal. ASBU-MENOS terminals will now additionally be deployed over 48 regions in Algeria with two separate networks for radio and TV contribution and exchange.

Looking Ahead We See a Multiservice World

The year ahead is set to be one of the greatest yet for the satellite industry with the Rio World Cup and the introduction of a new standard for the entire satellite sector with the upcoming DVB-S2 technology upgrades. The High Throughput Satellite discussion is also entering full swing with many new players starting to use the technology in multiple business models but with a shift towards open networks and selling Mhz.

We also believe multi-service and multi-technology platforms will become key talking points in 2014 as operators and service providers look to squeeze even more out of their networks. Today's single service satellite networks are built to carry or stream video, to transfer files, provide data connectivity, to carry VoIP traffic or for other similar tasks. In these cases specific space segment is reserved for dedicated applications and customers. Network and space segment resources are managed in silo's meaning they cannot be optimized.

Multi-service networks on the contrary are networks that serve multiple customers (virtual networks), and carry multiple services (video, audio, broadband, voice) over the same infrastructure all with their specific quality of service targets, sharing the available spectrum, and managed from a central network operations center.

Not only do multi-service networks generate more business opportunities, they also save OPEX. A breadth of modulation and access technologies are selected to match different service profiles and space segment is allocated dynamically. An all-IP infrastructure facilitates hybrid terrestrial/satellite networks which greatly reduces operational costs. As the era of single service satellite networks departs the industry will be preparing for Multi-Service! We expect to see this high on many agendas in 2014.

Here's to another great year for the satellite communications industry.

Newtec wins award for outstanding achievement

Slaheddine Maaoui, ASBU Director General, handing over the 'Outstanding Achievement' award to Jeroen Husken, Newtec's Regional Sales Director and Tajani Bouqentar, Newtec MENA Branch and Customer Service Manager Satellite communications specialist wins ASBU BroadcastPRO Award for its pivotal role in developing new DVB-S2 extensions technology

"We are delighted to be recognized with an Outstanding Achievement award. By continuous innovation to increase efficiency of communications over satellite, and therefore lowering both CAPEX and OPEX, satellite operators, service providers and broadcasters are now able to launch new services in a profitable manner. This benefits the entire satellite ecosystem and extension end users around the world." said Serge Van Herck, CEO of Newtec.



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Umicore Shokubai Japan opens its new automotive catalyst Technical R&D Centre in Tokoname City

Umicore Shokubai Japan, the joint venture between Umicore and Nippon Shokubai, today inaugurated its new technical R&D centre in Tokoname City, Aichi Prefecture, in the presence of local and national government representatives. The new facility features state of the art equipment for development and testing of automotive catalysts for the Japanese automotive industry.

The facility will enable Umicore Shokubai Japan to further enhance its service level for testing next generation catalysts and will broaden its offering to Japanese OEMs. Umicore Shokubai Japan's President, Hideaki Muraki, commented: "Growing our global catalyst business with Japanese automotive producers is a key element of our strategy. We value not only the support of our customers but also of our parent companies Umicore and Nippon Shokubai." The investment was supported by development grants from the Japanese External Trade Organisation (JETRO) and the Aichi Prefecture. The Umicore Shokubai Japan HQ will also be transferred from Tokyo to Tokoname City.



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Caeleste and PCO sign an agreement on the development of advanced CMOS image sensors for scientific applications

Caeleste and PCO sign an agreement on the development of advanced CMOS image sensors for scientific applications.

Antwerp, Belgium, Nov. 14, 2013 – Caeleste and PCO proudly announce their collaboration to explore novel concepts and ideas in the field of CMOS image sensors. This collaboration is aimed at innovative and advanced product developments and will keep PCO a leader in state-of-the-art scientific and industrial cameras.

Patrick Henckes, CEO of Caeleste: *“We are very happy to be able to team up with one of the most advanced scientific camera manufacturers in the world. Our beyond-state-of-the-art focus fits perfectly their continuous innovation efforts.”*

Dr. Emil Ott, CEO of PCO: *“We are excited to start together with the experts of Caeleste to explore new frontiers in image sensors. We are looking forward, what the combination of Caelestes Know-How and creativity paired with our technical skills in camera design might achieve.”*



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Belgische waterbehandelingsunit zuivert urine en afvalwater voor bemande ruimtemissies

Ruimtevaartbedrijf QinetiQ Space uit Kruike heeft een contract met het European Space Agency (ESA) afgesloten voor de ontwikkeling van een waterzuiveringsunit voor gebruik tijdens ruimtemissies. Het contract voor deze Water Treatment Unit Breadboard (WTUB) omvat het ontwikkelen van een prototype voor gebruik door één individu. De WTUB combineert de zuivering van zowel urine als afvalwater. Het behandelde water kan door astronauten hergebruikt worden om zich te wassen of kan nog verder gezuiverd worden tot drinkwater.

QinetiQ Space is de projectleider en werkt samen met het Spaanse ruimtevaartbedrijf NTE Sener, de Vlaamse Instelling voor Technologisch Onderzoek (VITO) en het labo van Microbiële Ecologie en Technologie van de Universiteit Gent (UGent). De UGent staat in voor de definitie en analyse van het urinewatersysteem. VITO is verantwoordelijk voor de analyse en definitie van het afvalwatersysteem. Als input wordt douchewater, condens en de output van de urinewaterzuivering gebruikt. De contractwaarde van het project bedraagt 1,1 miljoen euro.

Terugdringen van waterconsumptie tijdens ruimtemissies

Tijdens ruimtemissies over langere periodes is water essentieel. Niet alleen als drinkwater, maar ook voor de hygiëne van de bemanning. Voor een ruimtemissie met zes bemanningsleden schat men een waterverbruik van 166 liter per dag, wat neerkomt op 60.500 liter per jaar. Die grote hoeveelheid toont de nood aan om efficiënte, betrouwbare en veilige waterbehandelingsunits te ontwikkelen.

QinetiQ Space definieert in een eerste fase van het project de vereisten voor het prototype en een eerste ruimtedesign, zodat het systeem ook in de ruimte naar behoren kan functioneren. Het prototype moet beide waterzuiveringsystemen combineren, wat op vlak van interfaces een grote wetenschappelijke en technische uitdaging is. Het ruimtedesign moet rekening houden met het ontbreken van de zwaartekracht, de lancering en de levensduur van de componenten in een totaal andere omgeving. Op het einde van het project wordt het prototype uitvoerig getest op aarde.

QinetiQ Space is al gestart met het uitwerken van de subcontracten tussen de verschillende partners. Eind deze maand start men met het definiëren van het project. Na die periode worden de verschillende subsystemen van het prototype getest, waarna een finaal design wordt ontwikkeld. De informatie die het WTUB-project zal opleveren, zal cruciaal zijn voor algemene waterbehandelingssystemen voor toekomstige ruimtemissies. In twee jaar zal de goede werking van het prototype gedemonstreerd zijn.

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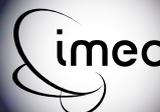
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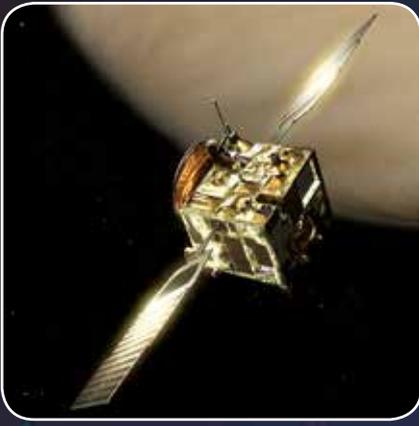


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