V.U. Hans Bracquené
Bondgenotenlaan 93/5
3000 Leuven
E-mail: vri@newtec.eu

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Geassocieerde leden

BRACQUENE LEGAL CONSULTING - CMOSIS - ES TOOLING KHBO AEROSP@CE DEPARTEMENT - KONINKLIJKE MILITAIRE SCHOOL LMS INTERNATIONAL - OMP - ON SEMICONDUCTORS IMAGE SENSORS PROJECT7 - VON KARMAN INSTITUTE - VOXDALE - XENICS

VOOR MEER INFO OVER ONZE LEDEN: WWW.VRIND.BE

EDITORIAAL

Jaar 1 na Caserta

2013 wordt voor de Vlaamse Ruimtevaartindustrie het eerste jaar na de Ministeriële Conferentie van CASERTA. Belangrijke nieuwe middelen werden vrijgemaakt en deze zware overheidsinvestering plaatst ons meteen voor onze verantwoordelijkheid: het is nu aan de bedrijven en de onderzoekers om deze middelen doelmatig aan te wenden en ervoor te zorgen dat zij de basis zijn voor belangrijke economische toegevoegde waarden en maatschappelijke relevante projecten binnen Vlaanderen. Deze verantwoordelijkheid schrikt ons niet af en we kunnen mooie resultaten uit het verleden voorleggen. Maar zoals de publiciteit zegt: resultaten van uit het verleden zijn geen garantie op succes voor de toekomst. Via ESA investeert de federale overheid in de Vlaamse Ruimtevaart de komende 4 à 5 jaar een bedrag van een half miljard euro. VRI heeft de ambitie om met dit bedrag een economische activiteit te ontwikkelen die twee tot drie keer hoger ligt. Dit doen de leden van VRI binnen de ruimtevaartsector zelf. Steeds leggen we er de nadruk op dat deze sector een volwassen economische sector is waarbinnen de normale regels van concurrentie en zeer strenge regels van kwaliteitsbewaking gelden. Maar daarnaast, en bovenop de vermelde return, zijn er ook belangrijke mogelijkheden voor toepassingen van de ontwikkelde technologieën en producten buiten de ruimtevaart. De initiatieven die ESA daarrond heeft genomen en die nu hebben geleid tot de creatie van een ESA Business Incubation Centre in Geel zullen een bijkomende impuls betekenen. Deze ESA investeringen hebben ook geleid tot een belangrijk aantal spin-off bedrijven van onze onderzoeksinstellingen, een aantal dat veel groter is dan wat men louter op basis van het aandeel van de ruimtevaartbudgetten binnen de budgetten van deze instellingen zou verwachten. Ook hier kunnen belangrijke nieuwe initiatieven verwacht worden.

De leden van VRI zijn klaar om deze uitdaging waar te maken.

Hans Bracquené

EDITORIAL

Year 1 after Caserta

For the Flemish Space Industry 2013 will be year 1 after the ESA Ministerial Conference of Caserta. The Belgian government has committed important budgets and this investment creates a great challenge for our companies and researchers. These resources need to be used efficiently and will be basis for the creation of important industrial turnover and new societal developments in Flanders. This responsibility is not new for us and we have a good track record here.
Through the ESA programs the federal government is investing half a billion Euro in the Flemish industry the coming 5 years. It is our ambition is to create an industrial activity for twice, three times this amount, as we have done in the past.
The members of VRI achieve this in the space industry itself. We underline it over and over again: this is a mature market with global competition and strict quality requirements. But next to our "home industry" we also look for opportunities in other applications. We support ESA's initiatives in this field of technology transfer that have also led to an ESA incubator in our region. Let me also emphasize the number of spin-off companies created by the research institutes that are VRI members. This number surpasses considerably the relative contribution of the space budgets in the overall budgets of these institutes.

All VRI members are ready for the challenge of the next 5 years.

Hans Bracquené

EUROPESE INTERREGIONALE SAMENWERKING OP DUNNE-FILM ZONNECELLEN

Leuven (België) – 5 oktober 2012 – Imec en zijn partners uit de Solliance alliantie kondigen vandaag samen met de het Instituut voor Materiaalonderzoek (IMO) van de Universiteit Hasselt de lancering van het Solar Flare interreg project aan. Solar Flare wordt gefinancierd door de Europese Unie en de regionale overheden en ondersteunt projecten in de regio Eindhoven-Leuven die focussen op de ontwikkeling van technologieën voor dunnefilm zonnecellen met hogere efficiëntie en lagere kostprijs.

Grootschalige ontwikkeling en gebruik van zonne-energie is een van de speerpunten van het Europese klimaatbeleid en de Europese 2020 doelstellingen. Solar Flare stimuleert innovatie en netwerking in de regio met als uiteindelijk doel de kost van zonne-energie te verminderen met de ontwikkeling van innovatieve dunne-film zonneceltechnologieën als mogelijk toekomstig alternatief voor de gangbare siliciumzonnecellen. Omdat in dunne-film zonnecellen de actieve laag veel dunner is dan in siliciumzonnecellen kan er op de grondstoffen bespaard worden. Maar om van dunne-film zonnecellen een volwaardig alternatief te maken voor siliciumzonnecellen moet de omzettingsefficiëntie – die momenteel ongeveer 13 % bedraagt voor modules – verder verhogen tot ongeveer een efficiënte van 17 % zodat ze de efficiëntie van siliciumzonnecelmodules benadert.

Het Solar Flare project focust op stimuleren van innovatie voor ontwikkeling van dunne-film zonneceltechnologieën op basis van nieuwe materialen zoals CIGS en alternatieven voor CIGS en voor verwante technologieën zoals bijvoorbeeld het gebruik van transparante geleidende lagen voor dunne-film zonnecellen. Dit soort ondergrond moet nichetoepassingen zoals zonnecellen geïntegreerd in vensters mogelijk maken, waar esthetische argumenten en respons voor indirect licht vaak een belangrijke rol spelen naast pure kostargumenten. Ten slotte zal ook een cost-of-ownership model voor dunnefilm zonneceltechnologie ontwikkeld worden om op basis daarvan het potentieel van dunne-film zonnecellen voor de lokale industrie in te schatten.

"*Zonne-energie blijft ongetwijfeld een belangrijke rol spelen in de EU2020-strategie. Door de expertise over de grenzen te bundelen kunnen onze bedrijven hun marktpositie verstevigen. We moeten daarom blijven inzetten op innovatie,*" aldus Monique Swinnen, gedeputeerde van de provincie Vlaams-Brabant en lid van de stuurgroep Interreg Vlaanderen-Nederland.

Het Solar Flare project kadert binnen Solliance, een initiatief dat steunt op de complementariteit van de Solliance partners en dat de positie van de ELAT-regio (Eindhoven-Leuven-Aachen driehoek) als relevante speler op de internationale dunne-film zonnecelmarkt wil versterken. Solliance creëert synergie tussen meer dan 250 onderzoekers uit verschillende onderzoeksinstituten. Binnen Solliance worden de onderzoeksprogramma's van de verschillende onderzoeksgroepen afgelijnd, wordt state-of-the-art infrastructuur gedeeld, en wordt nauwe samenwerking met de lokale industrie gestimuleerd.

Het Solar Flare interregional project wordt gefinancierd door de European Unie, Interreg Vlaanderen-Nederland, Nederlands Ministerie van Economische Zaken, Landbouw en Innovatie en de provincies Noord-Brabant (Nederland), Vlaams-Brabant en Limburg (België). Partners in het the Solar Flare project zijn ECN, TNO, imec, Holst Centre, TU/e en de Universiteit Hasselt/IMO.

EUROPEAN INTERREGIONAL COLLABORATION ON THIN-FILM PV

Leuven (Belgium) – October 5, 2012 – Imec and its partners in the Solliance initiative announce that they have launched, together with the Institute of Materials Research of the University of Hasselt (IMO), the Solar Flare Interreg Project. Solar Flare is co-funded by the European Union and the regional governments and supports regional projects in the Eindhoven-Leuven region that focus on the development of thin-film solar energy with higher efficiency and lower cost.

Large-scale development and application of solar energy is one of the focus points in the European Climate policy and the EU 2020 strategy. The Solar Flare project aims at reducing the cost of solar energy by developing a thin-film PV technology as possible future alternative to the prevailing Si PV technology. To make thin-film PV a viable alternative to Si PV, the efficiencies of thin-film solar cells, which are currently around 13 % for modules, should approximate the efficiencies of today's mainstream Si PV modules of around 17 %.

The Solar Flare project stimulates innovation and networking within the region, to promote the development of CIGS and alternative thin-film technologies which are based on novel materials, and of generic technologies that are vital to any thin film PV industry such as transparent conductive layers are being investigated. This type of surfaces must enable niche-applications such as solar cells integrated in windows, where not only cost but also aesthetic arguments and response to indirect light play an important role. In order to estimate the potential for local industries to develop thin film PV technologies, a specific Cost of Ownership model for TF-PV will be developed and used.

"Solar Energy will undoubtedly keep on playing an important role in the EU2020 strategy. To strengthen the position of our local industry in this global market, cross-border collaboration is essential. We therefore will keep on supporting open innovation in the region," says Monique Swinnen, Deputy of the province of Vlaams-Brabant (Flanders) and member of the steering group Interreg Flanders-The Netherlands.

The project runs within the framework of Solliance, an initiative to leverage the complementarities of the Solliance partners and strengthen the competitive position of the Eindhoven-Leuven-Aachen triangle (ELAT region) as a relevant player on the global thin-film PV market. Solliance creates synergy among more than 250 researchers. Within Solliance, research programs of the different research groups are aligned, state-of-the-art infrastructure is shared, and close cooperation with the solar business community is assured.

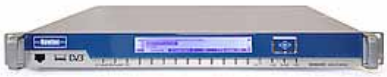
he Solar Flare interregional project is funded by the European Union, Interreg Flanders-Netherlands, Ministery of Economical Affairs, Agriculture and Innovation (The Netherlands), and the provinces of North Brabant (The Netherlands) and Flemish Brabant and Limburg (Belgium). Partners within the Solar Flare project are ECN, TNO, imec, Holst Centre, TU/e and the University of Hasselt/IMO.

NEWTEC'S MDM6000 SATELLITE MODEM WINS THE 'MOST INNOVATIVE PRODUCT' AWARD AT SATCON 2012

The **Newtec MDM6000 Satellite Modem**, a versatile new generation satellite platform developed by Newtec, has won the Satellite Markets and Research **Most Innovative Product Award**. Through the combination of new high speed and high efficiency technologies based on the upcoming S2 Extensions, the modem achieved the world speed record earlier this year[1].

Slava Frayter, VP Americas, accepted the award on behalf of Newtec at the Satellite Markets and Research Vision Awards reception yesterday evening during SATCON2012 in the Javits Convention Center, New York City.

The Newtec MDM6000 Satellite Modem was launched in September 2012 and completes



Newtec's modem portfolio to cover all IP applications and any speeds. This particular modem handles **data rates up to 380Mbps** in each direction.

The high-speed MDM6000 modem is in full compliance with the DVB-S2 standard and already supports the upcoming S2 Extensions. Newtec has taken the lead and teamed up with other DVB-members in order to define and develop the update on the DVB-S2 standard. Newtec's contribution to the standard has resulted in new satellite transmission technologies that are already implemented in the MDM6000 Satellite Modem. Those technologies include smaller roll-offs, advanced filtering, more and better MODCODs, FEC upgrades and wideband support (72Mbaud).

Standards are crucial for a healthy and profitable growth of our satellite industry. By improving satellite transmission technologies and by sharing the basics of those technologies through standardization,

[1] Earlier this year the Newtec MDM6000 technology broke the throughput barrier achieving 506Mbps on a 72MHz transponder. The test combined the MDM6000's Bandwidth Canceller, Clean Channel Technology® and new modulation and Forward Error Correction codes to achieve the record.

the industry as a whole will be able to grow in a profitable way. The efficiency technologies contributed by Newtec to the new DVB standard boost the satellite link up to 20 % in Direct-To-Home networks and 64 % in other professional applications compared to DVB-S2. These gains already exceed the results by proprietary systems in the market today. For more information on S2 Extensions please refer to the white paper 'S2 Extensions Demystified' online through http://newproducts.newtec.eu/s2-extensions.

"For our technology to be ***recognized as the most innovative product*** *launched this year* ***in such a competitive market, is a great achievement,"*** said Serge Van Herck, CEO of Newtec. *"This award highlights that we are shaping the future of our industry by leading the way in developing and making strides in our battle to further improve transmission efficiency. Our dedicated team across the world is consistently working on new products and ideas that enable us to deliver the best solutions possible that are aimed at improving the business of our customers."*

NEWTEC'S KA-BAND HUB AND TERMINALS ON HYLAS 2: INSTALLATION AND ON-SITE TESTS SUCCESSFULLY COMPLETED

First ISPs Testing InSat's Afghanistan-based VSAT and Broadband IP Access Service on Avanti's HYLAS 2

Hub Antenna in Makarios Satellite Earth Station in Cyprus

Avanti Communications, InSat and Newtec today confirmed that they **successfully completed their joint tests of Newtec's Ka-band hub** infrastructure in Cyprus. Additionally, Managed Service Provider (MSP) InSat announced that the **first Afghan ISPs have started testing** their service.

InSat is providing services for Afghan telecom providers based on Newtec's Broadband platform (Sat3Play®) which provides IP access services for consumers and business **under InSat's brand name Hi-Stream®.**

Matthew O'Connor, Chief Operating Officer for Avanti, said: *"Avanti would like to welcome InSat as one of our* ***newest HYLAS 2 partners*** *and congratulate Newtec on completing a* ***speedy installation of its first Ka-band hub, in just three days.***"

InSat CEO Valentine Gurinovich said *"On site in Afghanistan we* ***have installed control stations and some customer terminals at Afghan Internet service providers*** *to run tests of our broadband satellite Internet access Hi-Stream designed especially for regions like Afghanistan and other* ***emerging countries****. I announced the launch at CABSAT in March 2012. The* ***results are very impressive*** *and confirm* ***our choice in favour*** *of Avanti's Ka-Band satellite HYLAS 2 and Newtec's Sat3Play technology. I kindly invite further Afghan ISPs to become a partner and to participate in the tests to convince themselves of the performance and the competitiveness of our new service."*

Newtec will be the exclusive technology partner for all InSat services, providing two-way satellite broadband technology.

Serge Van Herck, CEO of Newtec, said: *"Newtec's broadband technology has a proven track record of being highly reliable and efficient with well over 100.000 terminals deployed today. We are providing a solution that matches today's and future needs of InSat's ISPs* ***by providing download speeds up to 22 Mbps on our MDM2200 broadband terminals****"*.

Newtec's IP Broadband Hub and Terminals

Interested ISPs can get more information and learn how to join tests and become a client via InSat's microsite www.hi-stream.com.

SEPTENTRIO ANNOUNCES FIRST GNSS RECEIVER WITH FULL SUPPORT OF TERRASTARTM SERVICES

Leuven, Belgium – Septentrio announces today the full support of TERRASTARTM wide-area differential and Precise Point Positioning (PPP) capabilities in some of its receivers. The Septentrio AsteRx2eL is an all-in-view dual-frequency GPS/GLONASS receiver, featuring an integrated L-band modem to receive TERRASTARTM data transmitted by satellite and field-proven dm-accurate positioning using this data.

AsteRx2eL also features GNSS+™ technology, a unique combination of industrial grade performance algorithms, to better serve high-precision positioning needs even in the most severe conditions.

Support of TERRASTAR-MTM and TERRASTAR-DTM allows precise position calculation anywhere on the globe. TERRASTARTM services achieve accuracy levels down to 10cm without the use of extra communication such as radio or mobile. Powered by TERRASTARTM services, AsteRx2eL provides a high level of flexibility for consistent dm-level accuracy everywhere on earth and cm-level where local RTK corrections are available. Septentrio multi-constellation receivers will provide position accuracy and high-availability independently of local infrastructure for the various applications in any of the markets that they traditionally serve:

- Land & Aerial Survey and Mapping
- Machine Control for Agriculture, Construction and Mining
- Precise Navigation for Land, Sea & Air

'The introduction of support for TERRASTARTM offers our customers an important additional option for accurate positioning, notably in the absence of local infrastructure', Peter Grognard, Founder and CEO of Septentrio Satellite Navigation said. 'It has been a pleasure for us at Septentrio to closely collaborate with the great team at TERRASTARTM to develop and deliver a strong new value proposition with robust industrial performance everywhere on the globe'.

DEME GROUP SELECTS THE TERRASTAR-D® SERVICE WITH SEPTENTRIO GNSS RECEIVERS FOR ITS DREDGING OPERATIONS

Leuven, Belgium – **Septentrio** announced today that DEME, a world leading group of dredging and land reclamation companies, has selected the TERRASTAR-D® "Precise Point Positioning" service to work with its Septentrio GNSS receivers.

The Belgian dredging and environmental group is exploiting the service using Septentrio **AsteRx2eL** GNSS positioning and **AsteRx2eH** GNSS heading receivers to support its near-shore dredging and construction operations worldwide. DEME has evaluated and used the service for several months and selected TERRASTAR-D® for its accuracy, stability and consistent performance.

TERRASTAR-D® in combination with Septentrio dual-frequency GNSS receivers provides a global, seamless, high-accuracy position – often better than 10 cm – at high updates rate that does not require local base stations, radios or cell coverage. TERRASTAR-D® uses both GPS and GLONASS satellites to allow a reliable positioning around the world and a faster convergence even in the most demanding user environments.

"We trust the quality and robustness of the service," said Lorentz Lievens, Head of Survey department, DEME. *"It provides real-time global decimeter-level positioning accuracy without the need for a reference station when operating in remote locations or when reduced setup time is critical."*

"We are delighted that DEME has validated the excellent performance of TERRASTAR-D® on Septentrio receivers," commented Jan Van Hees, Head of Sales & Business Development at Septentrio. *"Septentrio has worked very closely with TERRASTAR® to create an optimal combination of receiver algorithms and corrections. Since its introduction, the TERRASTAR-D® service has demonstrated strong appeal to users for both inland and near-shore surveying activities as well as machine control applications."*

About Septentrio

Septentrio Satellite Navigation designs, manufactures, sells and supports high-precision OEM GNSS receivers for the most demanding professional navigation, positioning and timing applications. Septentrio delivers breakthrough technology in the development of high-end GNSS receiver instruments and the integration of hybrid solutions. Septentrio receivers offer unrestricted signal tracking capability and the most comprehensive range of countermeasures to mitigate GNSS vulnerability. For more information about Septentrio, please visit our website at www.septentrio.com.

About DEME

DEME is specialized in dredging, marine engineering and a wide range of environmental activities. DEME operates a modern and multi-functional fleet of large dredgers and auxiliary vessels. The company employs 4,200 people. The Group is active worldwide – in more than 50 countries on all continents. Its current investment program in high-tech equipment enables DEME to meet future challenges with an ultra-efficient and very modern fleet.

XENICS PRESENTS COMMON PLATFORM FOR GIGE/CAMERALINK/COAXPRESS

Xenics, Europe's leading developer and manufacturer of advanced infrared detector solutions, is clearing the path to modularity and flexibility, enabling industrial users easy integration plus faster time to market. At Vision 2012, Xenics will unveil a compact common interface platform for its proven Gobi (LWIR), Bobcat (2D SWIR) and Lynx (line-scan SWIR) cameras. The interface supports GigE-Vision, CameraLink and CoaXPress for industrial applications. Xenics exhibits in Hall 1, booth 1D82.

At Vision 2012, Xenics is demonstrating its advanced in-house design and production capabilities. Based on a modular design, tuneable for optimum power dissipation and best performance, Xenics will introduce a GigE-Vision/CameraLink/ CoaXPress camera interface. Its electronics is common for all camera configurations, so virtually all kinds of sensors can be accommodated. The interface supports several of Xenics' pioneering product groups: Gobi (LWIR at a resolution of 640x480 or 384x280 pixels), Bobcat (SWIR, 640x512 or 320x256) and Lynx (line-scan SWIR, 1x512, 1x1024 and – a unique layout -1x2048).

With these enhanced interface provisions, Xenics opens up applications in machine vision, such as inspecting, identifying and measuring parts, pick-and-place and assembly, high-speed sorting, failure analysis, hot-spot detection, traffic control and medical applications. A decisive advantage of Xenics' pioneering IR camera designs is that they cover the full wavelength realm from SWIR to LWIR - including thermography.

The Xenics Bobcat-640, a compact TE1-cooled SWIR camera with on-board, userconfigurable image processing, is geared to cost-sensitive, high-volume markets. The compact form factor of 55x55x85 mm• (GigE Vision model) or 55x55x67 mm• (CameraLink model) makes it the smallest available SWIR solution, enabling easy integration while offering low noise and low dark current. Bobcat-640 targets industrial segments such as solar and process control, as well as scientific R&D user audiences, remote sensing and space.

Xenics' uncooled Lynx is the smallest available high speed SWIR line-scan camera to offer GigE Vision and CameraLink interfaces for easy system integration. The camera features the highest line resolution up to 2048 pixels and offers various programmable configurations ranging from a high sensitivity mode to a high dynamic range mode. The camera is fully optimized for integration in advanced solutions in industrial image processing, medical electronics, hyperspectral imaging and spectroscopy.

The Xenics Cougar offers extreme SWIR imaging capabilities for demanding lowlight-level applications through its 77K liquid-nitrogen (LN-2) cooled XFPA-1.7-640LN2 GaAs detector featuring a high resolution of 640x 512 pixels. Cougar enables failure analysis through photon-emission and electroluminescence methods and spectroscopy. Long integration time up to >24 hours is supported.

Bobcat-640 and Lynx are currently available with GigE-Vision- and CameraLink interfaces; CoaXPress versions will come out later in 2013. Cougar is already on the market.

Also on display: Xenics' Bobcat-Gated, which offers extremely short – 80 nsec – integration times. Gobi-384/Gobi-640-GigE/-CL-/-CoaX is a well received bolometer camera. Its GigE version is already certified according to MVTec HALCON, Stemmer Common Vision Cubes and Cognex VisionPro. Cheetah-640CL is the world's fastest InGaAs camera. Onca is a proven high-accuracy/high-detectivity camera solution. The XenicsCores provide a common interface at multiple wavelengths (XTM and XSW).