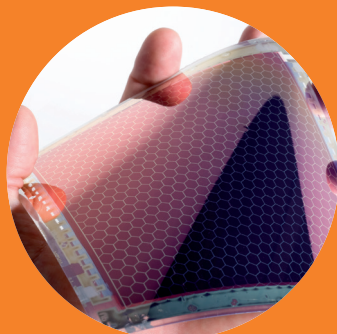


## Programme

### Hannover Messe 2016



## Foreword

# Holland High Tech: Global Challenges, Smart Solutions

With over 120 exhibitors, the Netherlands continues to have a prominent presence at Hannover Messe, the largest industrial trade fair in the world. Companies and other exhibitors will be jointly presenting their products and services in the Holland Industrial Supply Pavilion in Hall 4, the Holland High Tech House in Hall 2/C12 and the Holland Energy and E-Mobility House in Hall 27/H40.

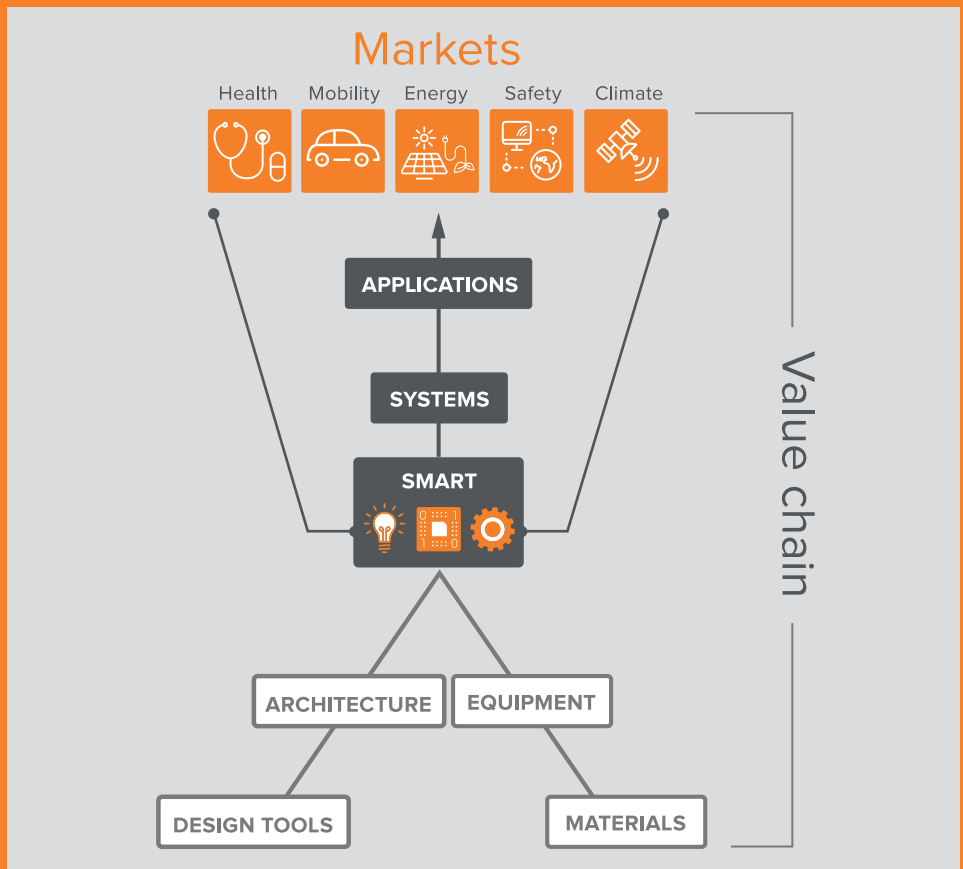
Dutch high-tech companies are among the top global players in their markets and distinguish themselves by their technological excellence. The Dutch High-Tech Systems and Materials sector consists of a number of interwoven industries such as the machine and systems industry, automotive, aerospace and aviation, semiconductor and the materials industry, which develop key technologies such as micro/nanoelectronics, nanotechnology, photonics, advanced materials, semiconductors, and electronic components and systems.

Our system suppliers are able to manage complex industrial value-added chains and are increasingly becoming the key to international competitiveness because they can adapt to the customer's requirements and take responsibility in the areas of product development, process development, mass production and lifecycle management. From the design of a system to its output, our creativity is the source of future-proof products, applications and services, which are often developed in interdisciplinary, open and international partnerships. In the Netherlands, we know that you have to collaborate in order to perform at the top of your game, that it's impossible to be the best in every discipline, that companies and knowledge institutes must work together in open innovation partnerships. Sharing knowledge in the precompetitive stage is not only a challenge, but also an opportunity.

The Dutch high-tech sector helps find solutions in the fields of health (intelligent health care systems), mobility (improved road safety), sustainability (clean cars and trucks and electric vehicles), and alternative sources of energy (solar cells). We are proud to show that the Netherlands is the place to be for technological solutions to global challenges in the fields of health, mobility, energy, safety and the climate. Applications that help improve the lives and wellbeing of people in the Netherlands and around the world. We looking forward to exchanging ideas with you!

A. Lundqvist

Chairman of the Dutch High Tech Systems & Materials sector



# Programme

Monday April 25

## What's Next

What's Next? High Tech Innovation is fueled by scientific excellence, industrial ingenuity and societal inspiration. This is an ever accelerating process and demands that we look into the future and ask 'What's Next?'. High Tech in the Netherlands is increasingly focused on connecting all areas and actors, and has built a well-deserved reputation for excellence. On the opening day at Hannover we therefore offer you a broad perspective on 'What's Next' in the Netherlands and in the High Tech world, from industrial opportunities to exciting long term developments expected in science. Subjects will include Advanced Instrumentation and Field Labs. Still the core question that we hope the audience will keep asking us and our panel of leading experts will be 'What's Next?'.

**Organizer** NWO, 3TU, FME

**Contact** Martijn Verwegen, Policy Officer NOW, tel. +31 70 344 05 14,  
m.verwegen@nwo.nl

**Time** 10.00 - 12.00

**Location** Hall 2, stand C12

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## Wissenstag 2016: Knowledge for Industrie 4.0

Industry 4.0 demands an intensified cooperation with partners in R&D, Higher Education and policymakers. How does that work? Where does it work? What makes it work? Where are inspiring 'best practices'? Top people from industry, R&D, and Higher Education meet and exchange experiences and new initiatives.

Knowledge brings innovation and new perspectives and new relationships for new products. Spreading and exchanging knowledge about these, in particular internationally, will do this even more.

## Program

- 11.00 Registration
- 11.30 Opening by Mark Rutte, Prime Minister of the Netherlands
- 12.00 Building Knowledge Nations.  
Keynote by Henk Ovink, Special Envoy for International Water Affairs for the Netherlands and Rebuild by Design leader in the USA on water, climate change and high tech as strategic, innovation and governance challenges.
- 12.30 Big Data, Industry 4.0 and the Internet of Things as a challenge.  
Forum discussion on Big Data, Industry 4.0 and the Internet of Things as a challenge: public / private big data, big and small companies, transparency vs. privacy and 'ownership of data'. With dr. Norbert Gaus (Executive Vice President, Head of Research and Technology Center, Siemens AG), dr. Mirko Tobias Schäfer (director of the Utrecht Data School) and dr. Hugo Velthuis (professor New Business & ICT, Hanze University of Applied Sciences)
- 13.00 The future of space exploration as high tech Industrie 4.0 and innovation in the next two decades.  
Presentation by dr. Koen Geurts, division head, Telespazio VEGA Deutschland
- 13.20 Official launch of the European STEM Coalition, with amongst others Jet Bussemaker, Netherlands' Minister of Education, Culture and Science
- 13.45 Drinks

The Wissenstag is moderated by Farid Tabarki (Studio Zeitgeist) and is organized by ScienceGuide, in co-production with the Dutch National Platform Science and Technology and the American STEM Education Coalition, with generous support by Utrecht University, Hanze University of Applied Sciences and Brightlands.

**Organizer** ScienceGuide

**Contact** PG Kroeger, +31 20 428 53 71, [pgkroeger@scienceguide.nl](mailto:pgkroeger@scienceguide.nl)

**Time** 11.00 - 14.00

**Location** Hall 3, stand H34, Business Forum 1

## HighTechXL Pitch Contest

Do you have this brilliant idea you want to share, a problem you can't solve or just want to meet some cool people? The Start-up & Innovation square, Hall 4 C52, is inviting you for a pitch contest! Your idea is worth doing! In just three minutes convince the audience of your brilliant idea, innovation or start-up.

The Jury will award the best idea with the following value package:

1. Select your training package in the EYnovation and Holland Innovative Academy with a total value of €5.000, -.  
([www.holland-innovative.com/academy](http://www.holland-innovative.com/academy))
  2. Join our vibrant community in the start-up center HighTechXL Plaza on the High Tech Campus Eindhoven NL or Blue Innovation Center Venlo NL with a three months free office/lab space.
- Hans Meeske, Managing Director Holland Innovative

**Organizer** Holland Innovative

**Contact** Hans Meeske, tel.+31 620 619 096, [hans.meeske@holland-innovative.nl](mailto:hans.meeske@holland-innovative.nl)

**Time** 14.00 - 15.30

**Location** Hall 4, stand C52

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## What's Next - continued

What's Next? High Tech Innovation is fueled by scientific excellence, industrial ingenuity and societal inspiration. This is an ever accelerating process and demands that we look into the future and ask 'What's Next?'. High Tech in the Netherlands is increasingly focused on connecting all areas and actors, and has built a well-deserved reputation for excellence. On the opening day at Hannover we therefore offer you a broad perspective on 'What's Next' in the Netherlands and in the High Tech world, from industrial opportunities to exciting long term developments expected in science. Subjects will include Advanced Instrumentation and Field Labs. Still the core question that we hope the audience will keep asking us and our panel of leading experts will be 'What's Next?'.

**Organizer** NWO, 3TU, FME

**Contact** Martijn Verwegen, Policy Officer NOW, tel. +31 70 344 05 14, [m.verwegen@nwo.nl](mailto:m.verwegen@nwo.nl)

**Time** 14.00 - 16.00

**Location** Hall 2, stand C12

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## Additive manufacturing for Aerospace

The NLR is engaged in the development of 3D printing manufacturing technology. Primary focus is on aerospace applications where the demands for consistent quality are high. It is the view of the NLR that 3D printing will revolutionize both the building process and the maintenance concepts in Aerospace. However, some challenges will have to be overcome before we are reached that revolution. One of the challenges is the certification of parts and the production thereof. The NLR is engaged in a multiyear programme to investigate different aspects of production such as process parameters, quality control and certification. This programme aims to find a solution to the certification challenge. The presentation will describe the NLR, our 3D printing (SLM) facility and the programme.

- Tim Leeuwerink, Marketing manager, Netherlands Aerospace Center

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 15.30 - 16.00

**Location** Hall 4, stand D44

## Night of Innovation: Reception Holland High Tech House

Networking reception with a cocktail bar and Dutch DJ

**Organizer** FME-CWM

**Contact** Ingrid Kerklaan, Tel. +31 6 83 52 45 48, [ingrid.kerklaan@fme.nl](mailto:ingrid.kerklaan@fme.nl)

**Time** 17.15 - 20.00

**Location** Hall 2, stand C12

## Tuesday April 26

### Science for Climate & Energy

There are many uncertainties surrounding climate change: how fast is it going, how do different factors contribute? New system solutions are needed to make both energy and material use sustainable or circular and thereby reduce humanities footprint. To tackle this the NWO institutes SRON and DIFFER along with their partners will present two different approaches inspired by science and resulting in innovative technologies. The first resolves around Monitoring Earth from Space and the advanced sensor systems used to study earth surface. The second revolves around energy resources and their sustainable and circular use, from nuclear fusion developed at ITER to Solar Fuels developed by CO2 recycling.

**Organizer** SRON, DIFFER

**Contact** Gerard Cornet, Policy Officer SRON, tel. +31 88 777 570, [G.Cornet@sron.nl](mailto:G.Cornet@sron.nl)

**Time** 10.00 - 12.00

**Location** Hall 2, stand C12

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### Energy Talk 'Smart Together'

The provincial government of Noord-Brabant in the Netherlands has the ambition that our region is independent from non-renewable energy in 2050. To reach this goal we work closely with High Tech industry, knowledge institutions and the people of our region. Come to our Energy Talk to get the details on the Smart Energy, Smart Metering and Smart Mobility projects that help us to preserve our region. These projects accelerate the social innovation that is needed for an energy transition. We – Enexis (network operator), Eneco (power company), GreenFlux (service provider) and Holland Innovative (product development) - are Smart together.

#### Program

- 10.30 Reception
- 10.45 Province of Noord-Brabant: Sustainable society – from dream to reality in Noord Brabant (Anne-Marie Spierings, Provincial Executive Noord Brabant)
- 10.55 Enexis: Together Smart - The road to a sustainable society (Lonneke Driessen, Program Manager E-mobility Enexis)



- 11:15 Welcome to the new world: changing the energy market  
(Michael van Hulst, General Manager South-Holland Enexis)
- 11:30 Simplifying Charging Infrastructure management (Hans de Boer  
& Lennart Verheijen, GreenFlux)
- 11:45 Reliability development and prediction in new product introduction  
of Smart Meters (Henk van Haren, Sr. Director Product & Process  
Development in Holland Innovative)
- 12:00 Closure
- 12:15 Meet & Greet

• Moderation Rob de Groot, Province Noord-Brabant

**Organizer** The Province of Noord-Brabant

**Contact** Wesley van der Linden, tel. +31 616 514 199, [WvdLinden@brabant.nl](mailto:WvdLinden@brabant.nl)

**Time** 10.30 - 13.15

**Location** Hall 4, stand D44

## Allianz Industrie 4.0 Baden-Württemberg meets Smart Industry

Integrated industry demands a coordinated strategy of business, science and government to align efforts to make full use of the opportunities digitization offers. In Baden-Württemberg and The Netherlands the ALLIANZ Industrie 4.0. and Smart Industry strategies have been underway for two years. A good moment therefore to meet and share experiences about these programmes with senior executives from both countries.

### Workshop program

- 14:00 Opening by Mrs. Anne-Marie Spierings (Provincial Executive  
Noord Brabant)
- 14:05 ALLIANZ Industrie 4.0 by Mrs. Hanna Müller (Clustermanager VDMA)
- 14:15 Smart Industry by Prof Dr. Egbert-Jan Sol (Programmanager Holland  
High Tech)
- 14:20 Panel discussion moderated by David Pappie.  
Mrs. Hanna Müller, VDMA / Prof. Dr. Egbert-Jan Sol, TNO / two  
entrepreneurs from both countries.
- 15:00 Meet & Greet

- Moderation: David Pappie, Director Industrial Policy, Ministry of Economic Affairs of the Netherlands

**Organizer** Embassy of the Netherlands / Holland Innovation Network,  
VDMA / Allianz Industrie 4.0 Baden-Württemberg

**Contact** Eelco van der Eijk, tel. +49 172 715 7846, [Eelco-vander.Eijk@minbuza.nl](mailto:Eelco-vander.Eijk@minbuza.nl)

**Time** 14.00 - 15.00

**Location** Hall 4, stand D44

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## Big Science Infrastructures - For science AND industry!

Membership in Big Science infrastructures like CERN, SKA and ESA satellite missions allows Dutch scientists to contribute to major scientific breakthroughs. These infrastructures are aimed at enabling the cutting edge of scientific research and leads to many innovations: from digitalization to novel medical treatments. On a short time scale this also presents industry with challenging and beneficial projects. This sustainable market in scientific instrumentation drives companies to innovate, whilst working with scientists stimulates the exchange of knowledge and technology. This makes High Tech companies more competitive. ASTRON, Nikhef and SRON and their industrial partners from Holland High Tech - Advanced Instrumentation will show opportunities and successes in the Big Science market.

**Organizer** Nikhef, ASTRON, SRON

**Contact** Rob Klöpping, Industrial Liaison Officer Nikhef, tel. +31 20 592 20 91, [klopping@nikhef.nl](mailto:klopping@nikhef.nl)

**Time** 14.00 - 16.00

**Location** Hall 2, stand C12

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## Value creation by Smart Industry and Advanced Manufacturing

Distinctive product creation and realization, taking benefit of innovation in technology and data science (the 4th industrial revolution), enable leadership in the one single digital market. Differentiating innovation by customer oriented, digitally connected value chains provide globally competitive propositions. Lifelong learning, the ambition to win and moral leadership are key characteristics to develop sustainable solutions to global challenges.

Revitalization of manufacturing industry and industrial outperformance are the foundation to safeguard (European) prosperity and a socially stable society.

- Rob Karsmakers, Corporate Affairs Lead Advanced Manufacturing Philips

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 15.00 - 15.30

**Location** Hall 4, stand D44

## Green Technology and Solutions: Innovators Show

Six companies will pitch their latest green technology and solutions that address the current global challenges in the field of renewable energy and mobility. A renowned and international jury will select a winner who will win the prestigious Cleantech Award. This event is also the perfect location to meet the different participants of the Holland Energy and E-Mobility House. After the award ceremony we will serve cocktails, drinks and small bites; the perfect setting for informal networking with the sustainable energy and e-mobility sector.

**Organizer** FME / Cleantech Holland, Fier Automotive, Emodz

**Contact** Rogier Blokdijk, Manager Cleantech Holland, tel. +31 79 353 1295, [rogier.blokdijk@fme.nl](mailto:rogier.blokdijk@fme.nl)

**Time** 15.00 - 18.30

**Location** Hall 27, stand H40

## The Digital Supply Chain

**Digital Production** - The transformation from paper drawings to digital drawing, everyone can be a producer.

**Open innovation** - Innovations depend on attracting the most talented engineers in the world and educate and motivate them.

**Digital Distribution** - Logistical costs can be greatly reduced by making the products on the desired location and application.

- Martijn Witteveen, Commercial Director, Blok Group

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 15.30 - 16.00

**Location** Hall 4, stand D44

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## NRW-Netherlands Get Together

### NRW – Netherlands: a special relationship

The Netherlands is North Rhine-Westphalia's biggest trading partner, with many, intensive economic relationships in operation. The regional proximity and high standards on both sides open up attractive opportunities for supplier arrangements and cooperation.

Deliverables worth two billion Euros (mechanical engineering) come to Germany from the Netherlands. Our neighbour therefore occupies a leading position in the import rankings. For Germany's mechanical engineering industry, the Netherlands is one of the main export markets, with the export volume from NRW standing at more than one billion Euros.

### Program

- |       |   |
|-------|---|
| 16.30 | Welcome<br>Mechanical and plant engineering in NRW<br>Hans-Jürgen Alt, Cluster Manager ProduktionNRW, Director,<br>VDMA NRW |
| 16.40 | The strengths of the Dutch industry<br>Jos Kleiboer, Managing Director, Koninklijke Metaalunie                              |
| 17.00 | Tour NRW Joint Booth  |
| 17.30 | Get Together & Networking<br>Lounge of the NRW Joint Booth in Hall 16, Booth A10  |
| 18.00 | End   |

**Organizer** NRW Produktion & Koninklijke Metaalunie

**Contact** Ina Grothof, tel. +49 211 687 748-25, [ina.grothof@produktion.nrw.de](mailto:ina.grothof@produktion.nrw.de)  
Hester Schoonderbeek, tel. +31 30 605 33 44, [internationaal@metaalunie.nl](mailto:internationaal@metaalunie.nl)

**Time** 16.30 - 18.00

**Location** Hall 16, booth A10, NRW Joint Booth Event Space

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## Reception

Informal network reception for all who are interested in the field of green technologies and mobilitec. We will serve cocktails, drinks and small bites at the Holland Energy & E-mobility House centrally located in Hal 27. Feel free to join us.

**Organizer** FME / Cleantech Holland, Fier Automotive, Emodz

**Contact** Rogier Blokdijk, Manager Cleantech Holland, tel. +31 79 353 1295, [rogier.blokdijk@fme.nl](mailto:rogier.blokdijk@fme.nl)

**Time** 16.30 - 18.30

**Location** Hall 27, stand H40

## Wednesday April 27

### Technology made simple by visualizing complex products

One of the greatest challenges facing companies is how to transfer technical knowledge to customer value. Since most decision makers don't have a technical background they need to be convinced and educated about your products competitive advantages. How will this contribute to a higher sales conversion and what is the impact from a marketing perspective?

- Ton Kuper, Founder and Managing Director C4REAL

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 10.30 - 11.00

**Location** Hall 4, stand D44

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### The Digital Factory: the smart networked high tech supply network

The purpose of this project is to seamlessly connect all parties in the high tech supply chain, so that data around orders, schedules and technology can be shared quickly and that everyone can have the right information in a timely manner. Knowledge institutions, software suppliers and manufacturing companies, are working together towards a smart networked supply network.

- John Blankendaal, Managing Director Brainport Industries

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 11.00 - 11.30

**Location** Hall 4, stand D44

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### Industrie 4.0 is all about data

Machine manufacturers and factory owners need to do more with less in order to meet the ever-increasing customer demands. Everybody, including the Government, is expecting that they will come up with smart solutions.

These solutions require that you will have to gather data at every level within your organization and even far beyond. The collected data and information will have to be translated in improved services (Smart Service) and better products (Smart Products). To ensure that data can be exchanged seamlessly more vertical and horizontal integration of IT systems is required. Festa Solutions together with the other 34 member of the High Tech Software cluster can provide you with this vertical and horizontal end-to-end IT solution.

- Jeroen de Bruin, Software Cluster, Managing Partner Festa Solutions

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 11.30 - 12.00

**Location** Hall 4, stand D44

## Netherlands King's Day Network Reception

The government and exhibitors from the Netherlands invite their international partners to celebrate the birthday of King Willem-Alexander, the national day of the Netherlands. This will be a great opportunity to meet key decision makers and meet & greet with companies and knowledge institutions from the Netherlands.

During the reception the Golden Tulip, the Dutch Industrial Supply Award, will be awarded to the best Dutch exhibitor in the Hall 4 Dutch Industrial Supply Pavilion for 2016.

- elco van der Eijk, Embassy of the Netherlands, Counselor for Innovation, Technology and Science.

**Organizer** Embassy of the Netherlands, Ministry of Economic Affairs, Netherlands Enterprise Agency, Koninklijke Metaalunie, FME, NEVAT, Mikrocentrum, Brainport Industries, Holland Innovative, NWO and 3TU

**Contact** Eelco van der Eijk, tel. +49 172 715 7846, [Eelco-vander.Eijk@minbuza.nl](mailto:Eelco-vander.Eijk@minbuza.nl)

**Time** 17.00 - 19.00

**Location** Hall 4, stand D44

## Thursday April 28

### Intelligent technical systems make economical production in batch size 1 possible

Essentially, Industry 4.0 is about making production more flexible, faster and more efficient with the help of modern information and communication technologies. This basically involves the need for better drive technology and motion control. Today, we already supply intelligent technical systems, modular and standardised software, and assistance systems for self-optimising machines. It is people, however, who are at the centre of Industry 4.0. People transform technical possibilities into appropriate and easy-to-use solutions. At Lenze, we have a lot of people who possess a great deal of experience, who understand machines and the challenges facing our customers and can help them to find the solutions they need. This is why we say: Lenze – The people who are setting Industry 4.0 in motion.

- Dipl. Ing. Frank Maier, CTO, Lenze

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 10.00 - 10.30

**Location** Hall 4, stand D44

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### Rethinking Technical Talent

In the Netherlands high-tech companies are constantly looking for skilled craftsmen and high-performing engineers, PhDs and specialists. The high-tech industry needs to keep up its efforts on Research & Development and Innovation. At the same time demography is misbalanced because over the next ten years we will lose a substantial number of experienced people. Is the High Tech Industry future proof? Not completely. But step by step we manage to reach our goals. 3TU. High Tech Systems, the Netherlands Organisation for Scientific Research (NWO), High Tech NL and the 3TU. School for Technological Design invite you to a mini symposium on 'Rethinking Technical Talent'.

NWO will invite a speaker to give you an interactive insight into perceptions on 'Gender diversity and Human Capital'. Jos van Erp from High Tech NL will



speaking about integrating lifelong learning within High Tech Industry and PDeng trainees from the 3TU School for Design will share their experience on a two-year internship combining research within a working High Tech environment.

### Program

10.00	Opening and welcome by Mark Beumer, moderator
10.10	Gender diversity and Human Capital, invited speaker
10.45	Life Long Learning, Jos van Erp from High Tech NL
11.20	Internship program in the Netherlands for Engineers, 3TU School for Technological Design
11.50	Wrap-up and closure by Mark Beumer, moderator

**Organizer** 3TU High Tech Systems, Netherlands Organisation for Scientific Research (NWO), 3TU School for Technological Design, High Tech NL

**Contact** Mrs. Inge Rehorst, tel. +31 647 553 228, [inge@ab-initio.nl](mailto:inge@ab-initio.nl)

**Time** 10.00 - 12.00

**Location** Hall 2, stand C12

## Dutch OEM's must focus on product- and business model innovation

ABNAMRO, a leading Dutch industrial bank, has just published, with the support of strategy boutique DBSC Consulting, a report about the Industrial Internet Of Things for the Manufacturing Technology industry. Conclusions are that OEMs and suppliers need to focus on their own core competitive advantage with respect to IIOT. And the key recommendation is that if Dutch OEMs invest too little in IIOT product- and business model innovation, this will seriously reduce the health of the Dutch manufacturing technology industry.

- Ir. William Smit MMC, Partner DBSC Consulting

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 10.30 - 10.50

**Location** Hall 4, stand D44

## **Panel discussion: Paradigm switch in cooperation between German OEMs and Dutch Suppliers**

A paradigm shift in the traditional role between German equipment manufacturers and Dutch suppliers will lead to innovative and accelerating innovation. Successful examples between Dutch and German companies show that the cooperation between German and Dutch companies lands on an ever more fertile soil, when we will take advantage of each other's strengths.

- Piet Mosterd AWL, Willem Verhoef Contour, John Blankendaal Brainport Industries, Frank Maier Lenze, Dennis van Dijk Nijdra, Trumpf Germany, VDL ETG.

- Moderation: Ir. William Smit, Partner DBSC Consulting

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 10.50 - 11.30

**Location** Hall 4, stand D44

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## **Virtual reality training for machine operators**

In the coming years many experienced machine operators retire. There will be a shortage of experienced professionals in the field. To prevent production stoppages due to a lack of experienced personnel it is extremely important to have new personnel trained and prepared to handle unpredictable scenarios that cause machine and production line failures. How can this be done and what are the benefits?

Marjo Nieuwenhuijse, Managing Director, Serious VR

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 11.30 - 12.00

**Location** Hall 4, stand D44

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## Medizintechnik Holland

Medizintechnik Holland is a three-year funding program of the Dutch Government, based on the combined use of private and public resources and is intended to strengthen the Dutch competitive position abroad. To do this, the Netherlands Enterprise Agency (on behalf of the Ministry of Foreign Affairs) and 12 high-tech suppliers have joined forces in Medizintechnik Holland under direction of Brainport industries. The primary goal is to build new business relationships on the promising market for medical technology in (Southern) Germany. Medizintechnik Holland will further develop the good relations between the Netherlands and South Germany.

- John Blankendaal, Managing Director, Brainport Industries

**Organizer** Mikrocentrum

**Contact** Jan van Moorsel, tel. +31 653 967 648, [j.moorsel@mikrocentrum.nl](mailto:j.moorsel@mikrocentrum.nl)

**Time** 14.00 - 14.30

**Location** Hall 4, stand D44

## Transforming Engineering Education - challenges and opportunities

Engineering education drastically needs to transform in order to deliver comprehensive engineers for the rapidly changing and interconnected 21st century. Changing engineering education however proves to be a real challenge. 3TU.High Tech Systems and 3TU.Centre for Engineering Education (CEE) invite you to discuss your ideas on how to update the skills of tomorrow's engineer in three interactive sessions with representatives from industry, start-ups and knowledge institutes. Topics are: deadly dilemmas, virtual labs and artificial intelligence. Bas Haring, a renowned Dutch philosopher, writer of popular science literature, television presenter and professor at Leiden University, will share his ideas on artificial intelligence within a high tech work environment with humour and personal stories in a lecture. Prof. Max Louwerse will speak about implementing virtual labs in engineering education based on his experience as initiator of the DAF Technology Lab at the University of Tilburg. Aldert Kamp, Director of Education at TU Delft and CEE project leader for TU Delft, will involve the audience in Engineering Education dilemmas. Mark Beumer will act as moderator.

3TU. is a cooperative between three Dutch universities of technology (TU Delft, Eindhoven University of Technology and University of Twente).

### Program

- 14.00 Opening and welcome by Mark Beumer, moderator
- 14.10 Deadly dilemma's in engineering education, panel discussion
- 14.45 Virtual labs for engineering education; (virtual) reality or back to basics, Introduction DAF technology lab followed by discussion with panel
- 15.20 Meet your new colleague; Artificial Intelligence? Lecture from Bas Haring on artificial intelligence within a high tech work environment followed by discussion with panel
- 15.50 Wrap-up and closure by Mark Beumer

**Organizer** 3TU High Tech Systems and 3TU Centre for Engineering Education

**Contact** Mrs. Inge Rehorst, tel. +31 647 553 228, [inge@ab-initio.nl](mailto:inge@ab-initio.nl)

**Time** 14.00 - 16.00

**Location** Hall 2, stand C12

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## Friday April 29

### Smart Industry

Smart Industry is buzzing, but what is really involved? Research institutes and businesses are collaborating ever more closely to create the High Tech of the future. They both seek to tackle the long term challenges of the 21st century by stimulating innovation and developing skills. The Netherlands is strong in a wide variety of areas and thus offers many opportunities for both research institutes and companies. In this interactive session on Smart Industry various examples will be examined in which research institutes and or companies will show what challenges they seek to tackle, what solutions are emerging and what the impact can be or has been achieved.

**Organizer** ARCNL, ASTRON, Nikhef

**Contact** Marjan Fretz, Manager Advanced Research Center for Nanolithography (ARCNL), tel. +31 208517100, [M.Fretz@arcnl.nl](mailto:M.Fretz@arcnl.nl)

**Time** 10.00 - 12.00

**Location** Hall 2, stand C12

# Holland High Tech

Global Challenges, Smart Solutions



## Proud providers of smart solutions for global challenges!

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## Emobility Partners (PIB)



## German and Dutch collaboration

E-Mobility Partners facilitates the cooperation between German and Dutch companies involved in electric mobility. E-Mobility Partners, companies and research institutes work together in three electric-vehicle (EV) focus areas: charging infrastructure, urban mobility and heavy-duty EV.

With over 90,000 EVs charged every day, the Netherlands runs one of the world's largest and most advanced charging infrastructures. This network enables E-Mobility Partners to gain the technology and policy expertise needed to build smart charging infrastructures and define international standards.

The introduction of new technologies and transport modes, such as electric trucks, personal light electric vehicles (PLEVs) and mobility solutions, requires the involvement of many parties. Mobility initiatives, OEM solutions and service providers/policymakers are part of the partnership.

In Germany we focus on the states of Baden-Württemberg, Bavaria, Saxony, North Rhine-Westphalia, Hessen and Rhineland-Palatinate. The programme is supported by the Dutch embassy in Berlin, the Dutch consulate in Munich, the trade and innovation agencies of the Dutch government and the abovementioned German states.

The following E-Mobility Partners will be at the Hannover Messe: Chargepoint, Dutch INCERT, E-Laad, FIER Automotive, GreenFlux, Stint and Trikke Europe.

### Hall 27

Holland Energy and  
Emobility house

### Contact

E-Mobility Partners  
[www.emobilitypartners.com](http://www.emobilitypartners.com)

## Emobility Partners (PIB)



## Chargepoint introduces Chargepoint Upgrade Services

Chargepoint provides high-end charging solutions for governments, companies and consumers.

Chargepoint designed and built the software and hardware and is also one of the co-developers of the single charging pass, which gives users access to all charging stations in the Netherlands.

The charging infrastructure has undergone significant enhancements in recent years, and not all manufacturers have been able to keep up. This is why we developed the Chargepoint Upgrade Services. Most of the material will be recycled and the appearance of the charging system will generally remain unchanged. Once the upgrade has been completed, we can maintain the charging system's hardware and software through remote monitoring and enable the stations for 'smart charging'.

The latest generation of charging stations is equipped with outlets that charge car batteries at 43 kWh. This solution, the ZE-Ready charging station, has been approved by Renault. It charges a Renault ZOE almost to full capacity in 20 minutes, and with a 125 A connection, two ZOEs can be fast-charged at the same time.

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### Contact

chargepoint  
chargepoint.nl

This solution is also interesting for e-trucks. We charged e-trucks to full capacity in 4 to 5 hours, putting the charging station to the ultimate test. Chargepoint survived the toughest tests thanks to a number of enhancements. The result: E-vehicles are quickly back on the road, increasing their uptime.



## Emobility Partners (PIB)



## Driving on the sun

At GreenFlux, our vision is that driving should be a clean thing: we think that cars should drive on the sun.

To put this into practice, GreenFlux and a number of other companies have recently set up the Smart Grid In Balance project. In this project, EVs are charged primarily on power that is generated by local solar farms, wind farms and a local biomass power plant without overloading the local grid. Users also have real-time insight into the source of the energy mix they're charging their cars with.

But what we're really proud of is that we were able to develop this fully scalable system thanks to the tight collaboration with consulting partners, grid managers, energy providers, automobile manufacturers, app developers and charging station manufacturers.

Twenty five cars were connected to the system during the project, but scaling up to 1 million cars in as many locations and charging stations is entirely feasible.

This project brings us one step closer to our vision: we think that cars should drive on the sun.

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Emobility house

### Contact

GreenFlux  
[www.greenflux.nl](http://www.greenflux.nl)

## Emobility Partners (PIB)



## Trikke Europe: Bringing Personal Light Electric Vehicles to Cities

Trikke Europe produces personal light electric vehicles (PLEV) in the Dutch town of Putten.

The Trikke Electric Vehicle (EV) is a seatless, quick, convenient and proven PLEV used, among others, by police officers and people working in security and health services. The Trikke EV is easily charged from a normal power outlet and is approved for German public roads.

As the world continues to urbanize, mobility is becoming ever more difficult for municipalities and regional and national governments to address. To ensure people can move around in urban areas, multi-model transport systems will have to be introduced in which PLEVs are combined with cars, busses and other public transport such as trams and metros. As part of a multi-model transport system, Trikke EVs will help lower the number of cars on the road and thus reduce CO2 emissions.

With the ambition to introduce PLEVs as a new multi-model mobility solution for cities, Trikke Europe is part of the Dutch-German innovation platforms 'E-Mobility Partners' and 'E Mobility from Amsterdam to Berlin'. Within these platforms, Trikke Europe works with established research institutes and consulting firms.

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Emobility house

### Contact

Trikke Europe  
[www.trikke.eu](http://www.trikke.eu)

Trikke Europe is part of an international organization with production facilities and offices in Europe, the United States, Brazil and China. The Trikke, invented by Gildo Beleski, has been sold some 300,000 times worldwide. About 3,000 Trikke EVs are operated in Europe.

## e-mobiliteit van Amsterdam naar Berlijn (PIB)

## Vehicle2Holland, from Amsterdam to Berlin



neu mobilität  
und energie  
amsterdam  
hamburg  
berlin

With the Vehicle2HollandHouse, the Partners for International Business (PIB) consortium 'e-mobility/from Amsterdam to Berlin' are demonstrating that storing the excess energy generated by a household's solar panels in the battery of an electric vehicle will solve the capacity problems that will arise on the low voltage grid when the net metering threshold is abolished and households feed all their excess energy into the grid.

Solar energy is generated during the day when the sun is shining while most of the energy is consumed after dark.

Using the batteries of EVs as a buffer will balance supply and demand better. It will protect the grid from overloading and make additional investments in the grid unnecessary. An EV is a battery on wheels, so why not use the excess energy to charge it?

More and more automobile manufacturers are expected to use batteries in their vehicles without changing the warranty conditions.

The battery in the next generation of EVs will have a capacity that is equal to the weekly amount of energy consumed by an average household in the Netherlands.

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Holland Energy and  
Emobility house

### Contact

Emodz BV  
[www.vanberlijnnaar.amsterdam](http://www.vanberlijnnaar.amsterdam)



## Startups and big corporations. Successful together: caviar from a 3D printer

Startups need big corporations and big corporations need startups. This insight is at the root of the Dutch manufacturing industry's commitment to those founding businesses. The Dutch Industrial Supply Pavilion in Hall 4 will be serving guests with caviar straight from the 3D printer of startup Byflow.

'As the time to market gets shorter and shorter, big corporations can no longer allow themselves to invest the time and money in research and development that is really necessary,' says John Blankendaal, Managing Director of Eindhoven-based supplier network Brainport Industries. A key term in this regard is 'early supplier involvement', which is supposed to open doors for startups.

Holland Innovative, a company based on Eindhoven's High Tech Campus, specializes in systematic support for startups. 'We see ourselves as a development partner that builds bridges between startups, medium-sized enterprises and OEMs,' says Managing Director Hans Meeske. Current examples of innovation supported by Holland Innovative include a fully recyclable 'cool' cool box and a laboratory tap that received an honourable mention from Red Dot Award. Up to 40 startups benefit from the support they get out of the Startupbootcamp HighTechXL accelerator programme each year. Participating startups generally take their first steps into the international market at the Startup and Innovation Square.

### Hall 4

Industrial Supply Pavilion

### Contact

Holland Innovative

[www.holland-innovative.nl](http://www.holland-innovative.nl)



## Holst Centre looks to the future

Holst Centre shapes the future of health care, energy and safety.

### Health applications

The market is teeming with portable health monitoring devices and gadgets, but not all of them generate the high-quality data needed for a medical diagnosis. Holst Centre develops comfortable measuring equipment that is thin, flexible and supple and has a long battery life. The first ECG and EEG monitoring prototypes developed by Holst Centre are now available.

### OLED lighting

Holst Centre focuses on the development of flexible OLEDs, or organic light-emitting diodes. This thin, flexible, lightweight light can be applied to large surfaces in almost every shape making new designs and applications such as medical treatments possible. Some 20% of the electricity consumed today is used for lighting. The higher efficiency of OLEDs considerably reduces energy consumption and greenhouse gas emissions.

### Smart garments

Holst Centre is also working on the integration of solar cells, health sensors, lighting and displays for a wide range of applications such as garments that monitor people's fitness and health, gadget chargers and safety applications. Electronics are applied to garments using a connection technology developed by Holst Centre that matches the properties of the garment without affecting its flexibility, suppleness, breathability and even washability.

### Contact

Holst Centre

[www.holstcentre.com](http://www.holstcentre.com)



## Lovink Enertech

Lovink Enertech, specialist in cable accessories, has been developing and producing reliable cable joints for underground power distribution lines for over 95 years.

The Dutch government wants 14% of the power generated to be sustainable by 2020 and 100% of the power generated to be sustainable by 2050. A goal that all power companies will have to work toward achieving.

So we started thinking about how we could help them. We recently developed a cable joint specifically for power generated by wind farms and solar energy installations.

The power generated by sustainable power generators is currently fed into the grid through several cable joints. Our special feed-in joint has a branch configuration that eliminates the need for several joints and even an extra substation. This saves a lot of time and money.

Our branched feed-in joint is based on LoviSil® technology and is electrically insulated with liquid silicone, an isolation medium that has been in use for over 25 years. Its properties make it particularly suitable for sustainable applications.

In short, Lovink Enertech's feed-in joint is a sustainable and reliable investment!

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Holland Energy and  
Emobility house

### Contact

Lovink Enertech  
[www.lovink-enertech.com](http://www.lovink-enertech.com)



## EnerTwin for a cleaner environment and cheap electricity

Developed by Micro Turbine Technology BV (MTT), the EnerTwin is the first micro-CHP system that is entirely based on a microturbine. The boiler and a small power generator are united in one sustainable device. The heart of the EnerTwin is a microturbine that drives the generator. The EnerTwin generates 3 kW of electrical power and 15 kW of thermal capacity.

Generating electricity as a by-product of heat considerably reduces the impact on the environment and reduces energy costs because considerably less fuel is used compared with large power stations. With a yearly reduction of 3 to 6 tons of CO<sub>2</sub> and NO<sub>x</sub> emissions, which are already 30% lower than the EU's upcoming 2018 standard (EcoDesign EU 813/2013), the EnerTwin is of value to the environment.

This modern heater can be used as a stand-alone system, in combination with a boiler, in a cascade of multiple EnerTwins, or in combination with one or more conventional heaters. The variety of combinations is what makes the EnerTwin the perfect choice for applications ranging from bigger homes to office buildings. The EnerTwin is very reliable, has a long life and low maintenance costs, which shorten the payback period.

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Emobility house

### Contact

Micro Turbine  
Technology BV (MTT)  
[www.enertwin.com](http://www.enertwin.com)  
[www.mtt-eu.com](http://www.mtt-eu.com)



NEW COSMOS - BIE

## New Cosmos develops ultimate hydrogen sensor for fuel cell applications

The Japanese company New Cosmos has been producing unique gas sensors and detectors since 1960. In the last 10 years, the company has worked closely with the automobile industry on the development of a hydrogen sensor that will make fuel cell vehicles (FCV) safer.

The sensor had to respond quickly, start-up quickly and be extremely stable. It also had to be low maintenance and meet all of the automobile industry's requirements.

FCVs are the automobile industry's way of contributing to a cleaner environment. New Cosmos' years of experience developing and manufacturing gas sensors resulted in an extremely stable sensor with a very fast start-up and response time that meets all of the automobile industry's requirements.

The new hydrogen sensor can also be used in a number of other areas that need a fast-acting hydrogen sensor such as hydrogen fuel stations, luxurious coaches, heavy-industry vehicles such as agricultural machines, fork-lift trucks, the aviation industry and fuel-cell based uninterruptible power supplies used in data centres.

### Hall 27

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Emobility house

### Contact

New Cosmos BIE  
[www.newcosmos-europe.com](http://www.newcosmos-europe.com)

New Cosmos produces 3.5 million sensors a year for a wide range of applications. The company also manufactures stationary and portable detectors for different industries such as the semiconductor industry, automobile industry, as well as the oil, gas and chemical industries.

**New Cosmos – Be Sure, Be Safe**



## NWO



## ARCNL - Fundamental research with a mission

The Advanced Research Center for Nanolithography (ARCNL) focuses on the fundamental physics involved in current and future key technologies in nanolithography, primarily for the semiconductor industry.

ARCNL is a new type of public-private partnership between the University of Amsterdam, the VU Amsterdam, the Foundation for Fundamental Research on Matter (FOM), which is part of the Dutch research organization NWO, and ASML, the world leader in the production of lithography machines that define the structures of processor and memory chips for computers, tablets and smartphones. This new type of partnership combines the best of two worlds: the academic focus on scientific excellence and ASML's focus on a well-defined application area.

Momentous inventions are rooted in ground-breaking discoveries. This is why ARCNL ventures into unknown territory while looking towards industry for inspiration. EUV lithography is currently the most promising new technology for semiconductor manufacturing, which is why we focus largely on the physics that are central to the generation of high intensities of extreme ultraviolet light and its use in nanolithography. We strive to be the first to understand and control certain physical processes at the atomic scale and beyond. Our program will evolve over time and enable us to remain at the forefront of nanolithography research.



Netherlands Organisation for Scientific Research

### Hall 2

Holland High Tech House

### Contact

Advanced Research Center  
for Nanolithography  
(ARCNL)

[www.arcnl.nl](http://www.arcnl.nl)

NWO

**ASTRON**

Netherlands Institute for Radio Astronomy

## Astron - Super-efficient microserver to be trump card in greening ICT

### Big Data Research

Scientists from IBM and ASTRON have joined forces in the Dome project, where they are working on ground-breaking research for Big Data. The microserver is one of Dome's main products, with applications across society. It's not only 4 to 10 times smaller than a conventional server, it also uses very little energy. The microserver has now taken its first steps in industry pilot projects such as the smart factory.

### Super Telescope

Dome was established as a result of plans to build a mega telescope, the Square Kilometre Array (SKA). The SKA will produce an unrivalled amount of daily data, in fact too much for current systems and techniques to handle. The innovations needed for such a superior computer system will have applications in many other industries and sectors.

### Societal Value

Dome is all about finding a way to turn Big Data into something that is reliable, accessible and environmentally friendly. Which is exactly how we would like to deal with data in health care, traffic, investigative work, water management, finance, education and many other areas. Dome research will affect many of the things we deal with in our daily personal and work lives. Dome is co-financed by the Dutch Ministry of Economic Affairs and the Province of Drenthe.



Netherlands Organisation for Scientific Research

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### Contact

ASTRON, home for  
ASTRON & IBM Center for  
Exascale Technology: Dome  
[www.astron.nl](http://www.astron.nl)  
[www.dome-exascale.nl](http://www.dome-exascale.nl)

NWO

**ASTRON**

Netherlands Institute for Radio Astronomy

## Astron - GPU-based brain for the LOFAR telescope and other big data processing applications

ASTRON developed the COBALT system (CORrelator and Beamforming Application platform for the LOFAR Telescope) based on CPU-GPU technologies.

COBALT, a highly power-efficient supercomputer system, is a co-design consisting of commercial off-the-shelf hardware components and proprietary software designed by ASTRON.

The system consists of eight production nodes and one development/test node, each consisting of two CPUs (Intel Dual Xeon E5) and two GPUs (NVIDIA K10). They are housed in a DELL T620 box and are connected by an FDR Infiniband Switching network. This creates a balanced system in which each CPU connects to one GPU, one Infiniband port and two Ethernet ports. In addition, the two CPUs in a node are connected.

In this setup, the GPU cards are cooled by dedicated air ducts designed by CIT Groningen and ASTRON's Mechanical Department. The whole system is DELL certified. The system was commissioned by the International LOFAR Telescope and now serves as a high-end processing platform.



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### Contact

ASTRON

Netherlands Institute for  
Radio Astronomy  
[www.astron.nl](http://www.astron.nl)

This platform technology, which uses COTS Graphical Processing Units (GPU) for complex calculations, is now available for use in other areas with a high demand for complex calculations on streaming data such as telecom, environmental modeling and video content analysis for mobility applications.

NWO

**ASTRON**

Netherlands Institute for Radio Astronomy

## Astron - Pure analogue data over low cost fibre links

The Square Kilometre Array telescope (SKA) is expected to be completed within the next two years. The Australian component will consist of some 130,000 antennas spread across a desert at a distance of about one kilometre.

In similar telescopes, the antennas' signals are digitized close to the antennas and transmitted to the central computer using commercially available optical digital communication equipment. This approach requires equipment that is quite expensive and consumes a relatively large amount of energy.

To keep the construction and energy costs as low as possible, the SKA telescope was designed from the outset to transmit the signals received from the antennas directly, meaning without any form of processing, to the central computer through optical analogue links.

ASTRON was able to develop the optical analogue link technology needed for the SKA thanks to the commercial availability of high-performance, low-cost optical communication components. This successfully reduced the manufacturing costs of the optical link technology by a factor 10 to 40 compared with commercially available alternatives.



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ASTRON

Netherlands Institute for  
Radio Astronomy  
[www.astron.nl](http://www.astron.nl)

This technology is now available for any application transporting analogue data over coaxial cables.

Analogue signals over low-cost fibre interconnects

## NWO



**DIFFER**  
Dutch Institute for  
Fundamental Energy Research

## DIFFER - Nanolayers protect solar panels from moisture

FOM Institute DIFFER is working with Fujifilm Research on technology that will enable functional foils to be produced on a large scale.

Thin layers of material with customizable properties are used on a large-scale to efficiently separate gas in chemical processes, generate clean electricity through blue energy, and as moisture-resistant top coat for flexible solar cells.

The partners successfully developed a very fast technique to coat foils for flexible solar cells and OLEDs with a thin vapour barrier. The barrier is created by plasma-assisted atomic layer deposition, which produces a combined top layer that repels moisture up to a thousand times better than individual layers. The top coat is thinner, which accelerates the production process by up to a few dozen times compared with existing techniques and considerably reduces the production costs of solar cells.

The combined layer produced by the partners has similar properties to existing commercial coatings but is quicker to apply thanks to the synergy between the two deposition methods.

Organic and flexible solar cells are an ideal tool for sustainable builders because they can be integrated in the structure alongside conventional solar panels on the roof. The ultimate goal is to create a type of solar cell that can be rolled out.



Netherlands Organisation for Scientific Research

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### Contact

DIFFER

[www.differ.nl](http://www.differ.nl)

Fujifilm

[www.green-plasma.eu](http://www.green-plasma.eu)

NWO



## INNOSEIS

## INNOSEIS - Research into gravitational waves results in commercial applications

The discovery of gravitational waves that made world news on 11 February 2016 is just the beginning of a completely new astronomy. Although it was a fundamental discovery, the technology results in concrete applications thanks to Innoseis.

Innoseis, a spin-off of the FOM Institute for Subatomic Physics, Nikhef, developed the application to visualize minuscule seismic vibrations from its research into gravitational waves. This is just one example of how fundamental research at Nikhef results in commercial applications. Innoseis co-founder Prof van den Brand was awarded the prestigious FOM Valorisation Prize for his contribution in this field.

Gravitational waves are changes in the gravitational field as a result of astrophysical events. The detected gravitational waves were created by the collision of two black holes. So far, it was common belief that a gravitational wave could not be measured on Earth. To ensure that the measurements were accurate, the equipment was isolated from external sources of vibration. This is how the scientists developed cutting edge technology that is now used in commercial applications.

Innoseis applies its know-how to the development of highly sensitive sensors that consume very little energy. This makes it possible to create networks with up to hundreds of thousands of sensors that can detect the smallest seismic vibrations. The data is used to create accurate 3D images of the substratum. An early partnership with Shell accelerated the development of the product and improved its applicability, which Nikhef scientists benefit from in turn.



Netherlands Organisation for Scientific Research

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Holland High Tech House

### Contact

Innoseis

[www.innoseis.com](http://www.innoseis.com)

Nikhef

[www.nikhef.nl](http://www.nikhef.nl)

## NWO

## Medipix - State-of-the-art multidimensional ion and electron detection and medical X-ray imaging

Special detectors used in high energy physics are able to detect subatomic particles such as protons that are invisible to the naked eye. Medipix uses X-ray imaging to take accurate, noise-free photos with less radiation at the same image quality.

In the Open Technology programme of technology foundation STW, FOM institutes Nikhef and AMOLF work together on new detector systems in a spin-off. The Dutch company Panalytical is also part of this Medipix advanced-imaging collaboration. This research team leverages the synergy between technological developments in high energy physics and molecular biophysics for future commercial applications.

Panalytical develops and produces measuring instruments that analyse material and are used, for example, in quality tests. X-ray detection reveals different crystal structures, which enables the pharmaceutical industry to ensure that no unwanted substances mistakenly find their way into medication during the production process. Similar applications are found in the cement and steel industry. By involving Panalytical in the project, Medipix combines scientific insight with the practical knowledge of industry.



Netherlands Organisation for Scientific Research

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### Contact

Medipix collaboration with technology foundation STW and FOM institutes Nikhef and AMOLF  
[www.AMOLF.nl/Medipix](http://www.AMOLF.nl/Medipix)

In the meantime, a third-generation Medipix-chip has been developed that not only counts photons but also determines a photon's energy. This makes it possible to look through a metal casing into the heart of a working mechanism, for example, a watch. The low noise of the image chip makes it very versatile.



**PhotonDelta**  
Integrated Photonics Ecosystem

## The ecosystem for photonics in the Brainport region

If the last century was the century of the electron, the 21st century is definitely the century of the photon! Photonics is taking off around the world and is a key enabling technology in Europe.

Integrated photonics is a chip technology based on light (photons) that consists of using the unique properties of light with photonic integrated circuits (PICs). PICs are used in devices in the same way as microelectronics as well as in combination with semiconductors.

Because they use light, photonic systems are a lot faster, cheaper, smaller, up to 20 times more energy efficient and more accurate (up to a factor 200 for metrology) than existing microelectronic systems.

Photonics are used in the production of powerful components such as lasers, optical amplifiers, modulators, switches and detectors for all kinds of equipment. Photonic technology is used in a wide range of areas, such as sensor and communication systems and data transport in the IT, Life Sciences, Agri-Food, Greenhouse Horticulture, Energy, Water and Logistics industries.

A complete ecosystem that works in the same way as microelectronics with the same economic prospects. One hundred and fifty companies are active in the Netherlands. The Eindhoven University of Technology, the COBRA Research Institute and Brainport companies such as SMART Photonics, EFFECT Photonics, Vtec and Genexis are global leaders. Photon Delta's ecosystem is a unique hotspot for III-V integrated photonic technology.

### Contact

Photon Delta  
[www.brainportdevelopment.nl/  
project/9699/](http://www.brainportdevelopment.nl/project/9699/)





## QuTech: development of the quantum computer

Advanced research institute QuTech – a joint initiative between TNO and TU Delft – works on the development of quantum computers and the quantum internet.

High computing power enables big scientific breakthroughs to be achieved in the area of materials, energy, health and safety. Quantum computers are important because they can solve problems much faster and to a deeper level than today's super computers, enabling things such as chemical reactions to be simulated in search of special materials, such as super conductors or materials for super batteries. A number of major scientific partners and corporations, including Microsoft and Intel, are affiliated with QuTech. Patents are pending in the area of electronics and quantum chips. A 'teleporting demonstrator' was also developed based on a fibre-optic cable that cannot be wiretapped. Dutch high-tech suppliers are pulled into QuTech's ecosystem at an early stage to work on components for quantum computers. QuTech is the heart of an international ecosystem of partners in the public and private sector such as TU Delft, TNO, NWO/STW/FOM, Microsoft, Intel and the Dutch ministries of Economic Affairs, and Education, Culture and Science.

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### Contact

QuTech  
qutech.nl



REACTOR  
INSTITUTE  
DELFT

## Reactor Institute Delft (RID) Fast charging batteries

Researchers at the Reactor Institute Delft have discovered the secret of electrodes in lithium-ion batteries. This discovery will not only enable them to create batteries that charge faster, it's also a step forward in the storage of energy in batteries, one of the technologies that has been coined to help supply power in the future.

The ability to store energy is a high priority, especially now that we're using more wind and sun-generated energy. The sun doesn't always shine and the wind doesn't always blow meaning that the energy that's not used in periods of low demand has to be stored, for example, in the batteries of electric cars, so it can be used in periods of high demand.

Researchers have discovered that the storage capacity of rechargeable lithium-ion batteries like the ones commonly used in mobile phones and tablets can be improved. They used neutrons from the Delft research reactor to study the behaviour of lithium ions in working batteries. They focused on the internal resistance because it determines how slowly and efficiently a battery charges and discharges.

Because every application has its own charging time formula, the researchers plan to develop pre-defined templates that manufacturers can modify to their battery's specific needs and improve their efficiency.

### Hall 2

Holland High Tech House

### Contact

Reactor Institute Delft (RID)

[www.rid.tudelft.nl](http://www.rid.tudelft.nl)



## smart industry

## Smart Industry The fourth industrial revolution

Driven by the Action agenda 'Smart Industry', TNO, FME, VNO-NCW, Nederland-ICT and the chamber of commerce, have jointly set the fourth industrial revolution in motion in the Netherlands.

The progress that has been made in robotics, sensor technology, the Internet of Things, 3D printing and nanotechnology cannot be ignored. Thousands of people have attended presentations, 15 Smart Industry lecturers are out spreading the word and 9 field labs are up and running. A digital factory is opening its doors and a Smart Industry Scan is available for SMEs. Alongside Germany's Industrie 4.0 project, our approach is considered as 'inspirational' in Europe.

Science and industry are working together on techniques in the area of 3D nanomanufacturing such as the use of nanoparticles in the human body to detect and fight disorders and diseases.

The Dutch earth-observation instrument TROPOMI was mounted on the Sentinel 5 Precursor satellite in 2015. TROPOMI is an extremely accurate climate change research instrument. The daily air-quality data that it transmits from space enables air pollution to be mapped at the city level. TROPOMI's optomechanical design was conceived mainly by TNO. The instrument was built and calibrated by a Dutch consortium led by Airbus Defence and Space Netherlands.

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### Contact

[www.smartindustry.nl](http://www.smartindustry.nl)



## Sorama: make the world sound right

Noise pollution is the second largest threat to public health after air pollution. The World Health Organisation (WHO) recently indicated that noise pollution caused by traffic costs 1,000,000 healthy life years in Europe alone. Thanks to Sorama's noise cameras, product and building designs can be modified to eliminate noise pollution.

Sorama's noise cameras make noise visible. The camera 'sees' the source of the noise, pinpoints its location and maps out how the noise moves through the object and the environment. This knowledge enables the 'guilty' product or building to be modified without having to go through a lengthy trial-and-error process.

Sorama has a rapidly growing customer base of manufacturers and suppliers of lorries, buses, motorbikes, compressors, generators, bicycles and (super) yachts as well as manufacturers of CHP systems, ventilation systems, heat exchangers and fans. Engineering and consulting firms also use our revolutionary technology to give professional advice on sound and acoustics.

This is Sorama's way of contributing to the quality of life for people wherever they are: at work, at home, in traffic or anywhere else.

### Hall 2

Holland High Tech House

### Contact

Sorama

[www.sorama.eu](http://www.sorama.eu)

## Suppliers



### **BLOK GROUP**

## Blok Group

The Blok Group of Velsen-Noord, Amsterdam, will be presenting high-tech components of the printer. They have just launched the world's largest 3D metal printer into the operation. A huge investment - with clear objectives. Thanks to Additive Manufacturing and Rapid Prototyping, the new products can become marketable faster and our customers have significant competitive advantages.

The company has underlined its ambition to be involved as a development partner at the beginning of the production chain. One of the important roles 3D printing of high quality components plays is, in the time saving, especially in two key areas: The prototypes already in the design phase can be printed quickly and minor modifications in the design can be implemented by simply pressing a button. Also at a much lower cost. As a result, time spent on the production process is reduced because traditional welding or adhesive bonding processes are eliminated. The new machine enables components with 800x400x500 millimeter dimensions to be printed - this is a revolution in the production. The printed parts are used in the most demanding industries: in the aerospace, automotive and medical industry as well as in the oil and gas industries. Therefore, the printer is also capable of processing high performance materials such as titanium, Hastelloy and Inconel, which are standard materials in those industries.

### **Hall 4**

Industrial Supply Pavilion

### **Contact**

Blok Group

[www.blokgroup.com](http://www.blokgroup.com)

## Suppliers



### Brainport Industries

## Brainport Industries

Brainport Industries of Eindhoven, the Netherlands, is a high tech network in the suppliers industry - with almost 90 affiliated companies throughout the Netherlands. Brainport Industries represent 9,000 employees and an annual turnover of two billion Euros.

Through this network, the suppliers have managed to become development partners of large OEMs. Previously, the process in the supply industry was composed of three steps: Inquiry, offer, execution. The roles were clearly distributed: You wish, we manufacture. But this model did not have a future. Therefore, considerable added value had to be developed. The approach of the Dutch supply industry was to participate in earlier stages in the production chain, i.e. in the product development stage. Today the Dutch supply industry is a partner on an equal level. Thanks to cooperation with suppliers, the large corporations can double their revenue and halve the costs. They rely on the collaboration with innovative partners. The members of Brainport Industries originate from different sectors, such as medical, semiconductor and photovoltaics technologies as well as the optical industry and measuring instrument technology. Even the companies differ, they must all provide this to the same degree: the highest quality.

### Hall 4

Industrial Supply Pavilion

### Contact

Brainport Industries

[www.brainportindustries.com](http://www.brainportindustries.com)

## Suppliers



## CLT Metal Service

Faster turnaround times and less material consumption, new design possibilities and zero mistakes: With the “Smart Metal Shaping” concept, the CLT Metal Service of Horst manages to respond to the increasing demands of their customers. In the center lies one of the most modern laser processing centers in Europe.

The new concept of the CLT Metal Service can support their customers in the food, chemical and mechanical engineering industries. The solution for increasingly important throughput and delivery time lies in automation and digitization. The exact model of the construction is prepared on the computer in 3D and the product is agreed on with the customers in detail. The system will do the rest automatically. The machine is a fully automated processing center for round and profile tubes with 20 millimeters of material thickness, with a length of fourteen meters and 610 millimeters maximum diameter. The resulting savings on time are quite considerable. Another advantage of the system lies in the new construction possibilities. The tubes and sheets can be connected together, the connectors can be prepared or carved at precise predetermined points. A further advantageous point is the 100% reproducibility. CLT cut, marked and packed 1.288 different pipes in accordance with the specifications for the stage decoration of the Eurovision Song Festival in Vienna.

### Hall 4

Industrial Supply Pavilion

### Contact

CLT Metal Service

[www.clt-horst.com](http://www.clt-horst.com)

## Suppliers



## Goudsmit Magnetic Supplies

From a trading house to an engineering partner:

Goudsmit Magnetic Supplies of Waalre, the Netherlands, has undergone a metamorphosis in the past few months. While Goudsmit Magnetic Supplies has always followed our customers, now the company is also developing new products and processes together.

The most modern machines, ISO certificates and high-tech test laboratories - the magnetic components and systems manufactured by Goudsmit Group meet the highest quality standards. One of the most important implementation areas is the automotive industry. Goudsmit Magnetic Supplies sit together with the designers of German automotive companies and jointly develop the desired products. In addition to the automotive industry, Goudsmit magnets can be found in almost all sectors where magnetic forces are required. The range extends from the emergency braking systems in trains and the wind turbines and the medical devices to the machines for the recycling industry. The company buys the material for the magnets from China. The largest deposits of rare elements are located there. The magnets are manufactured according to specifications. Goudsmit Magnetic Supplies has almost 30 years experience in China, and thus a high level of quality can be guaranteed constantly. Even customers who manufacture in China trust their Dutch supplier while purchasing magnets. Or they develop new products with Goudsmit engineers.

### Hall 4

Industrial Supply Pavilion

### Contact

Goudsmit Magnetic  
Supplies

[www.goudsmit-magnetics.com](http://www.goudsmit-magnetics.com)



## Suppliers

## LouwersHanique



**LouwersHanique**

Delicate components are made of solid quartz glass: The marketability of the required laser-based technology is the achievement of a German-Dutch high-tech cooperation.

The glass processing specialist LouwersHanique from Hapert contributes materials, process know-how and market access, LightFab, a start-up company from Aachen has developed the process of "Selective Laser-Induced Etching (SLE)". A typical example of how to get  $1 + 1 = 3$  Louwers Hanique supports its customers with Early Supplier Involvement. The company has been actively operating in the glass industry for about 60 years. Meanwhile, the company became a specialist for industrially-used glass processing. The company's main areas are thermal forming, precise processing, as well as innovative binding techniques. Over the years, LouwersHanique has built up excellent relations with prestigious customers. The company already is included in the concept phase of many customers, especially by large OEMs. In creative teams for example, the employees of the customers and suppliers develop new products, reduce procedures and test new materials.

### Hall 4

Industrial Supply Pavilion

### Contact

LouwersHanique

[www.louwershanique.com](http://www.louwershanique.com)

## Suppliers



## Nijdra Group

What are high-tech headphones to do with devices for non-destructive material analysis? It's very simple: Critical components come from the Dutch company Nijdra of Middenbeemster, north of Amsterdam.

Nijdra Group is a supplier of high-tech components and support our customers now from the design phase to the installation phase and from function test to the Supply Chain Management. The company is broadly positioned and operating for many different industries. The great advantage is that they can use the knowledge that is gained in an industry in another branch. The scope ranges from medical products such as implants or X-ray shutters and microphone components to spectrometer analysis devices. Additionally, high-performance materials such as nickel-based alloys and titanium are also processed. A good example of the cooperation with customers is the cooperation of Nijdra and Sennheiser. The result is one of the best headphones and amplifiers in the world: the Orpheus. With this prestigious project, which was under the direct management of Daniel Sennheiser, CEO of Sennheiser and Dr. Andreas Sennheiser, Nijdra Group has brought in expertise in the field of high-quality machining for the reproducibility of various mechanical parts of the headphone and amplifier. After several supply and talk rounds, Nijdra was finally selected as the production partner for this project at Hannover Fair 2015. Meanwhile several orders have been placed for the high-tech headphones.

### Hall 4

Industrial Supply Pavilion

### Contact

Nijdra Group

[www.nijdra.eu](http://www.nijdra.eu)

## Suppliers



## Error analysis during software development

Industry 4.0, the Internet of Things, 3D printing, big data and artificial intelligence: developments that require huge quantities of new software in a short time period and thus a source of numerous potential errors. The Dutch company Vector Fabrics, offers an innovative solution: tools for dynamic software analysis, which detect bugs during the development phase - and thereby minimising the risk of costly recalls or delayed market launches. This allows new products to be brought to the market more quickly and securely.

NASA has calculated that the repair of an error in the field costs a hundred times more than a fixed bug in the development phase. The resulting image damage cannot be quantified. However, data leaks, security vulnerabilities and recall actions are still in the headlines. How can you explain this development? Since almost all machines are equipped with a wide range of software applications, it is becoming increasingly important to understand the interaction between software and hardware.

"An occurrence called Heisenbug represents a special problem. These are errors that occur during interaction between software and hardware. "These errors only occur in reality, they can't be detected in any simulation." The software itself is programmed correctly, but the interaction between the program and the hardware cannot be simulated in any conventional test procedure.

At this point Vector Fabrics has developed a tool which detects errors in the software development phase." It has been succeeded by the name Pareon Verify: with a tool that automatically and dynamically searches through large quantities of program code for critical errors. "What's special about this tool is that it allows us to detect errors that other processes don't find"

### Hall 4

Industrial Supply Pavilion

### Contact

Vector Fabrics

[www.vectorfabrics.com](http://www.vectorfabrics.com)



## Cheaper and greener air travel with lighter aircraft

Knowledge institutes, the Dutch government and the Dutch aviation industry have joined forces in the TAPAS 2009-2013 and TAPAS2 2014-2017 projects to develop automated production techniques as well as materials and designs made from thermoplastics – a plastic/lightweight material - for Airbus.

Increasing the fuel-efficiency of aircraft by reducing their weight by 15%, and reducing production costs by using cheaper materials and simplifying the production process will make air travel more sustainable and increase its price-performance ratio. Eleven Dutch partners are involved in the projects, including Fokker, Ten Cate, TU Delft, University of Twente, SMEs and the Dutch Ministry of Economic Affairs.

TAPAS – Thermoplastic Affordable Primary Aircraft Structure – focuses on the production of aircraft parts such as wings and fuselages. A number of life-size prototypes have already been produced and tested with the new technology. The TAPAS2 programme will focus on developing and producing fuselage panels, engine mounting panels, tails and flaps. Research and preliminary test results show that producing the fuselage and the wings in thermoplastic composites is very cost effective. The aircraft are lighter and therefore more fuel efficient, and the use of cheaper materials and a simpler production process reduce production costs, making air traffic more sustainable.

### Contact

TAPAS

[www.tapasproject.nl/en/  
collaboration/partnerships](http://www.tapasproject.nl/en/collaboration/partnerships)



Centre of Expertise HTSM Oost

Een initiatief van Saxion  
en Windesheim

mede mogelijk  
gemaakt door

provincie  
Overijssel

## Innovative technology solutions for social issues

A 3D printer that prints a room, clothes or food.

Innovative materials used in construction, health care, sensors and textiles. Nanochips that enable you to check your blood glucose levels at home. TechForFuture, Centre of Expertise HTSM East, works on a number of high-tech projects that contribute to technological solutions for social issues. The centre is the backbone of the joint research agenda of Saxion and Windesheim.

We work with high-tech companies to create new opportunities. We discover and develop new technologies together with enthusiastic students trained to do independent practice research in companies. This is our way of contributing to international research for and with companies.

We work in the high-tech systems and materials (HTSM) market. Working with students creates an influx of young, knowledgeable and creative technicians with practical experience. Because the research is done in-company, students not only get sound practical training, the company gets to watch a potential employee grow.

Working with TechForFuture gives companies direct access to the expertise of education and knowledge institutes, research labs and innovation centres. High-tech mechatronics, nanotechnology, smart materials, plastics, IT in new products and systems: practice research enables the Netherlands to further specialize in high-end product engineering and in value-added manufacturing for social issues.

### Hall 2

Holland High Tech House

### Contact

TechForFuture, Centre of  
Expertise HTSM East  
[www.techforfuture.nl](http://www.techforfuture.nl)



## Twente, the most enterprising high-tech region in the Netherlands

The numerous specialized high-tech companies that have established themselves in this region are passionate about the world-class products they develop. International players such as Demcon, Xsens, Thales, TenCate and Sensata were all 'born' in Twente.

The University of Twente, which was voted the most enterprising university in the Netherlands, produces 900 spin-offs a year, while Hogeschool Saxion produces over 800. Kennispark Twente, the campus that is also home to the university, was designated Innovation Campus of the Netherlands. It is also where one of the most impressive nanolabs in the world is located, the High Tech Factory, where young entrepreneurs develop new nanotechnology-based products in the cleanrooms. Cottonwood Technology Fund's decision in 2015 to locate its head office in the 'centre of innovation, creativity, technology and highly educated talent' is a clear sign that the region has a lot to offer.

The region has a lot of innovation centres that collaborate with several companies on new developments and applications, such as the Thermoplastic Composites Research Center, TPRC, an initiative of TenCate, Stork, Boeing, Fokker and the University of Twente, where new composites are developed for the aviation industry. In short, Twente is a real high-tech breeding ground.

### Hall 2

Holland High Tech House

### Contact

Stichting Twente Branding

[www.Twente.com](http://www.Twente.com)

## 3TU

## ABU Engineered Solutions (ABU) Deformable Surface

ABU Engineered Solutions (ABU) is a start-up that was spun off in 2016 from research conducted by the Delft University of Technology.

ABU focuses on the development of true contactless handling systems for the semiconductor and solar energy markets. We design, engineer and build equipment to handle thin substrates of various sizes, materials and thicknesses. Our innovative solutions help optimize processes by improving control, increasing flexibility and reducing the risk of product defects.

Our mission is for the industry to benefit from contactless handling and control. To achieve this, we are constantly looking for opportunities to cooperate with industry partners and the Delft University of Technology. We believe that this is the best way of developing sustainable solutions to the challenges of today and the near future.



UNIVERSITY OF TWENTE.

## Hall 2

hightech innovations

## Contact

[www.3tu.nl/en](http://www.3tu.nl/en)

## 3TU

### BlueJay - TU/e - First domestic drone: Blue Jay

Fifteen students of Eindhoven University of Technology (TU/e) have developed a domestic drone for the university's 60th anniversary in April 2016.

The team's aim is to show that drones can do more than deliver packages and take photos. The 'Blue Jay' domestic drone is designed to find its way around a house safely and autonomously and to be friendly and helpful. The drone's mission is to assist people with small domestic tasks, such as putting things back where they belong, fetching a can of soda and so forth. In addition to carrying out specific tasks, the Blue Jay domestic drone must also be able to anticipate moods. In hospitals, the Blue Jay could assist with the distribution of medication.

# 3TU.



UNIVERSITY OF TWENTE.

## Hall 2

hightech innovations

## Contact

[www.3tu.nl/en](http://www.3tu.nl/en)



## 3TU

## Delft Robotics Institute Swarm Robots for complex observation, measurement and data collection task

Stratos II+ is the name of the student built rocket with which DARE (Delft Aerospace Rocket Engineering) reached 21.5 km altitude on the 16th of October 2015.

The rocket was launched from the El Arenosillo base of INTA in the south of Spain and is the latest step in Project Stratos which aims to fly a student built sounding rocket to the edge of space at 100 km altitude. The Stratos II+ rocket carried scientific experiments and broke the European altitude record for amateur rocketry. DARE is structured in several projects, each focusing on different aspects of the development of rocket launchers.

# 3TU.



UNIVERSITY OF TWENTE.

## Hall 2

hightech innovations

## Contact

[www.3tu.nl/en](http://www.3tu.nl/en)

## 3TU

## FAST - Building World's First Car on Formic Acid

Currently there are two leading car types that dominate the sustainable automotive industry: Hydrogen and electric cars.

We want to introduce a new type of car: A Formic Acid car. The remarkable thing about the formic acid car is that it uses a liquid fuel. Formic Acid is a hydrogen carrier, which means that hydrogen is stored inside the fuel. With the technology we use we are able to convert this hydrogen carrier back into hydrogen and carbon dioxide.

After that the hydrogen is purified and ready for the fuel cells. Formic acid is not a direct fuel. This means that before it is ready to be converted to actual power it has to be decomposed into hydrogen and formic acid. It is important to understand that our innovation does not lie in the powering system of the car. Instead, we develop a superior energy storage method. One that is significantly better than batteries and highly pressurized hydrogen tanks.



UNIVERSITY OF TWENTE.

## Hall 2

hightech innovations

## Contact

[www.3tu.nl/en](http://www.3tu.nl/en)

## 3TU

## ROSE project

Dikes protect a large part of the Netherlands from flooding. If they were to break, a lot of people would suddenly find themselves below sea level - literally. The goal of the ROSE project, which is financed by the Dutch Technology Foundation STW, is to develop a team of robotic sensors that will autonomously acquire data about the composition, consistency and condition of a dike.

The Technical University of Twente carried out a study on the feasibility of using autonomous robots to inspect dikes that draw their energy from both solar and wind power. The study consisted of determining the feasible daily operational time of such a vehicle, and submitted it to a number of test scenarios.

The results of the study revealed that it is feasible to use energy-autonomous robots to inspect dikes; that solar panels are probably not the best means of generating power in the Netherlands if the amount of solar energy available is less than the amount assumed in the study, but are feasible in regions with more hours of sunlight; and finally that adding a wind turbine would offer some benefit in general and a significant benefit in the months of low sunshine so the robot could also work in the winter.

# 3TU.

 Delft  
University of  
Technology

 Technische Universiteit  
Eindhoven  
University of Technology

UNIVERSITY OF TWENTE.

### Hall 2

hightech innovations

## 3TU

## Team DARE - Becoming the first amateur rocketry society in space

TU Delft participates in the MISAT microsatellite project, part of the MicroNed research project.

This project conducts research into microtechnology, which enables the launch of a series of small satellites instead of one large satellite, each built for a specific task and which work together on one assignment: telecommunications, observation of the earth or the exploration of our and other solar systems. If a weather or observation satellite comprises various separate functional components, then only that component has to be launched to replace a faulty component. In order to have nanosatellites such as Delfi-C3 work together, researchers looked at the example set by nerve cells. In spite of their large numbers, they know via coordination how to fulfil their common task. Researchers are attempting to unravel the mechanisms, rules and algorithms which ensure that the system as a whole is more intelligent than the sum of the individual parts. They aim to apply this knowledge by constructing an artificial 'colony' which can survive in extreme conditions in space. One precondition for the nanosatellite mission's success is the cooperation within the colony. All of the satellites can contact mission control, but it saves power if only one satellite does so. The rest only communicate within space.

# 3TU.

 TU Delft Delft University of Technology

 TU/e Technische Universiteit Eindhoven University of Technology

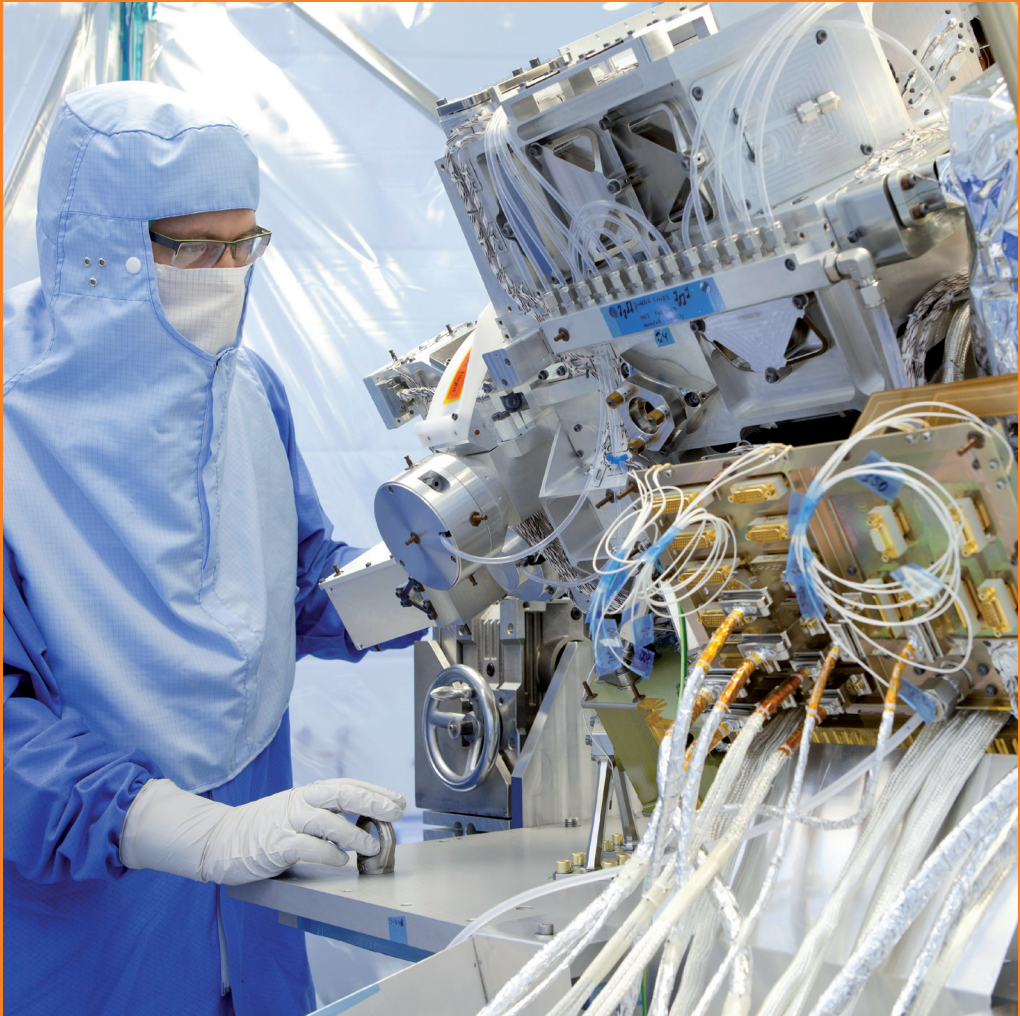
UNIVERSITY OF TWENTE.

## Hall 2

hightech innovations

## Contact

[www.3tu.nl/en](http://www.3tu.nl/en)



Nr	Exhibitors Netherlands	Hall	Stand
<b>A</b>			
1	Accerion	4	C52
2	Admesy	4	C52
3	Advanced Research Center - ARCNL	2	C12
4	AFMI Verspanende Industrie	4	A04 (18)
5	AHK Nederlande	3	H33/1
6	Alfen ICU	27	F61
7	Almotion	16	D16
8	Ambrell	4	F71/1
9	Anamet Europe	13	D54
10	ASTRON Netherlands Institute	2	C12
11	Avek Haarlem	4	D36
<b>B</b>			
12	Bal Seal Engineering Europe	12	B76
13	Berenschot Groep	2	C12
14	Blok Mechanische Industrie	4	C28
15	Blue Engineering	4	C52
16	BMO Automation	4	C52
17	Bons & Evers Metaalperswerk	4	E33
18	BOSAL Energy Conversion Industry	27	D50
19	Bouman Proces Technologie	27	H72/9
20	Brainport Industries	4	C28
21	Bronkhorst High-Tech	11	A42
22	Brusche's Aannemings Maatschappij	27	H72/9
<b>C</b>			
23	CBI	5	F30
24	CBI	6	A33
25	CBI	13	F70
26	Centri Tech Separations Twente	4	A04 (1)
27	CLT Metal Service	4	E41
28	CNEX-Global	9	H28
29	Contour Covering Technology	4	C42
30	Crest Dutch Machinery	4	C52
<b>D</b>			
31	Ddv media international	15	G43
32	DIMES	2	C12
33	Dycomet Europe	6	A50
<b>E</b>			
34	Ecovat Werk	27	H40
35	Elcee Group	4	D17
36	ELEQ	12	F44
37	Emodz	27	H40
38	Engberink Technische Installaties	27	H72/9
39	Etchform	4	D25
40	Euro-Techniek-Eindhoven	4	C28
<b>F</b>			
41	Festa Solutions	4	C28
42	Fier Automotive	27	H40
43	FOM-Instituut DIFFER	2	C12

Nr	Exhibitors Netherlands	Hall	Stand
<b>G</b>			
44	GALVANO Hengelo	4	A04 (17)
45	GETON Edelstahl	4	D23
46	Giovenzana International	12	D24
47	Goudsmit Magnetic Supplies	4	C28
48	Greijn Form Technics	4	C52
<b>H</b>			
49	H.A. Fasteners	5	A23
50	Hadro Techniek	11	B69
51	Herikon	4	A04 (10)
52	Holland Energy & E-mobility House	27	H40
53	Holland High Tech House	2	C12
54	Holland Innovative	4	C52
55	Huawei Enterprise, Western Europe	8	C13
<b>I</b>			
56	Inductive Systems Europe	4	C28
57	Industriebank - LIOF	4	C52
58	Inepro Metering	12	E69
59	InterGest Netherlands	3	H33/4
60	ITB Precisie techniek	4	C24/1
61	ITEQ Industries	4	C26
<b>J</b>			
62	Jeveka	4	C26/1
<b>K</b>			
63	Koninklijke Metaalunie	4	D40
64	Koninklijke Metaalunie	4	D44
65	Koninklijke Metaalunie	4	D45
66	Koninklijke Saan	4	A04 (19)
<b>L</b>			
67	Lexcom	8	B03/1
68	LouwersHanique	4	C28
69	Lovink Enertech	27	H40
70	Lucassen Groep	4	E11
<b>M</b>			
71	Machiefabriek Amersfoort	4	C44
72	Martec Nederland	4	C48
73	Medizintechnik Holland	4	C28
74	Micro Turbine Technology	27	H40
75	Mikrocentrum Activiteiten	4	D40
76	Mors Smitt	12	D55
77	M-Products	27	G64
78	MTSA Technopower	4	D43
<b>N</b>			
79	NEVAT	4	D40
80	New Cosmos-BIE	27	H40
81	Nijdra Special Products	4	D34
82	NIKHEF	2	C12

Nr	Exhibitors Netherlands	Hall	Stand
83	NV NOM Investment and	2	C12
84	NWO - Netherlands Organisation	2	C12
<b>P</b>			
85	Phynicx	4	C28
86	PM Special Measuring Systems	12	D13
87	P.M.P. Lichtenvoorde	4	A04 (1)
88	Polywater Europe	13	A69
<b>R</b>			
89	Recore Systems	9	H82
90	Romit	4	D49
91	RVS NON FERRO	4	C24
<b>S</b>			
92	Saxion - Tech For Future	2	C12
93	Scherpenzeel	4	C34
94	Schut PrecisionParts	4	C48
95	Schweitzer Engineering Laboratories	12	E12
96	Smink Group	4	C28
97	Soroma	2	C12
98	SoundEnergy	27	H72/8
99	SRON	2	C12
100	Stichting Twente Branding	2	C12
<b>T</b>			
101	Team Elektrisch rijden	27	H40
102	Team FAST	27	H40
103	Tebodin Netherlands	4	A04 (11)
104	Ter Hoek-Vonkerosie	4	A04 (21)
105	TNO	2	C12
106	Tulip Pumps B. V.	15	G43 (25)
<b>U</b>			
107	Uitslag	4	A04 (20)
108	United Springs	4	C46
109	Universiteit Leiden	2	C12
<b>V</b>			
110	VDL Groep	4	D33
111	Vector Fabrics	4	C28
112	Venne Electronics	4	C52
113	Verenigde Maakindustrie Oost	4	A04 (1)
114	Verenigde Maakindustrie Oost	27	H72/9
115	Vereniging High Tech NL	2	C12
<b>W</b>			
116	WBM Staalservice Centrum	4	D41
117	Wijdeven Inductive Solutions	12	D13
118	WKK Nederland	13	B77
<b>#</b>			
119	2E Cable Assembly	4	D42
120	3TU	2	C12

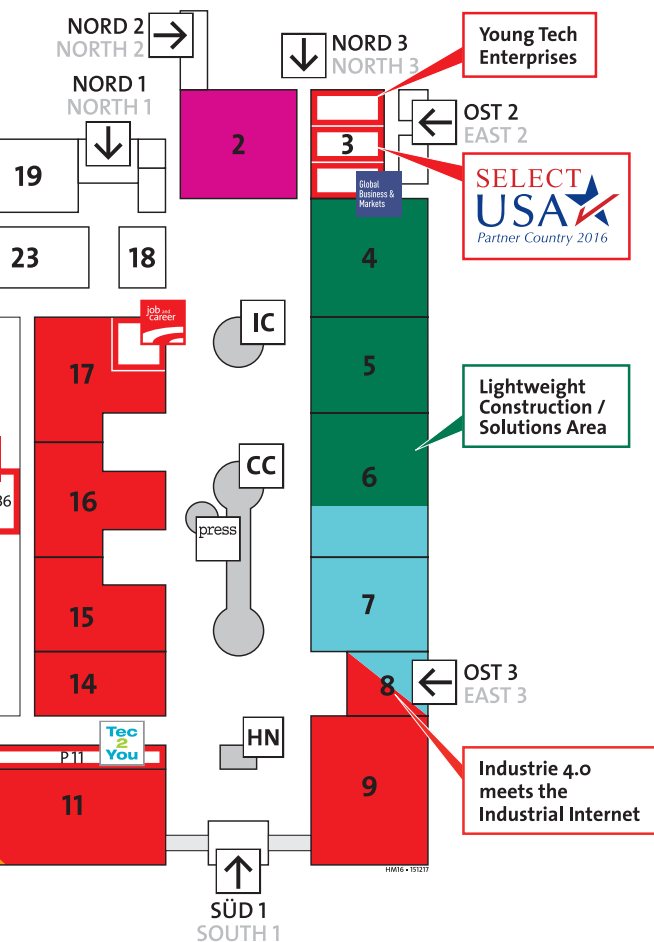


## Notes

# HANNOVER MESSE ■ 25 – 29 April 2016

- Industrial Automation**  
Leading Trade Fair for Factory and Process Automation, Systems Solutions and Industrial IT  
**Halls 8, 9, 11, 12, 14–17**
- Digital Factory**  
Leading Trade Fair for Integrated Processes and IT Solutions  
**Halls 6–8**
- Energy**  
Leading Trade Fair for integrated energy systems and mobility  
**Halls 11–13, 27, FG**
- Industrial Supply**  
Leading Trade Fair for Innovative Subcontracting Solutions and Lightweight Construction  
**Halls 4–6**
- Research & Technology**  
Leading Trade Fair for Research, Development and Technology Transfer  
**Hall 2**





Global Business & Markets  
(Halle/Hall 3)

job and career  
(Halle/Hall 17)

Tec2You  
(Pavillon/Pavilion 11)

Robotation Academy  
(Pavillon/Pavilion 36)

↑ Eingang  
Entrance

IC Informations-Centrum  
Information Center

CC Convention Center

HN Haus der Nationen  
House of Nations

press Presse-Centrum  
Press Center

FG Freigelände  
Open-air site

12/2015 ■ Modifications reserved ■ 151221

## Colofon

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### **Netherlands Foreign Investment Agency**

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# Holland High Tech

Global Challenges, Smart Solutions

