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# 60<sup>th</sup> International Conference on **Bio-based Materials**

10–11 May 2017, Maternushaus, Cologne, Germany

Focus: ++ Bio-based Building Blocks & Platform Chemicals ++ Polymers ++ Innovation Award ++ Start-ups ++



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## **CONFERENCE JOURNAL**

### HIGHLIGHTS OF THE WORLDWIDE BIOECONOMY

- Policy and Markets
- Standardisation, Labelling and Certifications
- Innovation Award “Bio-based Material of the Year 2017”
- Bio-based Building Blocks and Platform Chemicals
- Oleochemicals and Bio-based Polymers
- Start-ups
- BIO-QED Stakeholder Workshop



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# 10<sup>th</sup> International Conference on Bio-based Materials

10–11 May 2017, Maternushaus, Cologne, Germany

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## Venue

### Maternushaus Cologne

Kardinal-Frings-Str. 1–3  
50668 Cologne, Germany

+49 (0)221 16310

info@maternushaus.de

The venue is located within 10 minutes walking distance from Cologne central station and 30 minutes by train from Cologne/Bonn airport.

If you are coming by airplane: The Frankfurt airport – the second biggest in Europe – is a good choice. The high speed ICE train needs only one hour to Cologne central station and is very comfortable.



# 10<sup>th</sup> International Conference on Bio-based Materials

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## Preface

Dear participants,



Welcome to the 10<sup>th</sup> International Conference on Bio-based Materials in Cologne, which has become an important meeting place for bio-based building blocks and polymers.

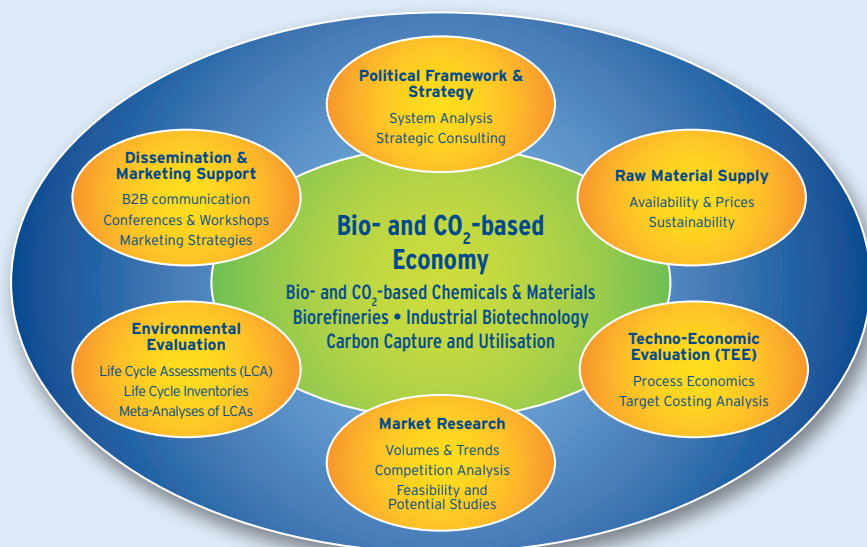
Currently, the bio-based economy is developing well. We see a lot of investment in medium-sized production plants and double digit growth for new bio-based building blocks and platform chemicals. They are precursors for new bio-based polymers, composites, textiles, adhesives, solvents, detergents or lubricants, which provide new features and properties for a wide range of end products. The world wide leading companies in the field of new bio-based building blocks will present their latest developments and applications.

The conference will therefore highlight bio-based solutions with special features and properties. They will conquer the market because they have a lot to offer and they are the first representatives of a new sustainable green chemistry. What comes next? Enjoy our start-up session with new processes and materials for the future.

An annual highlight of the conference will again be the presentation of the Innovation Award “Bio-based Material of the Year” – who of the participants will win this year?

The nova team wishes you an exciting and inspiring conference and fruitful networking opportunities.

Best regards,  
Michael Carus



## Your Conference Team



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## Programme | 1<sup>st</sup> Conference Day | 10 May 2017



**9:30 nova-Institut GmbH**   
**Michael Carus**  
Conference Opening

### POLICY AND MARKETS



**9:40 Bio-Based Industries Joint Undertaking (BBI JU)**   
**Pilar Llorente**  
Public-Private Cooperation to Support the Transition to a Bio-based Economy: the Bio-based Industries Joint Undertaking




**CHAIRMAN**  
**Prof. Jan Ravenstijn**  
**Jan Ravenstijn Consulting** 



**10:00 Biobased Delta**   
**Dr. Willem Sederel**  
People-Planet-Profit: The Societal Return on Investment in Bio-based Chemicals and Materials



**10:30 Neste SA**   
**Lars Börger**  
From Renewable Feedstock to Bio-based Solutions



**11:00 Backcasting SAS**   
**Pierre-Alain Schieb**  
Policy Updates for the Bioeconomy – Highlights and Future Prospects Around the World



**11:30 nova-Institut GmbH**   
**Michael Carus**  
Production Capacities of Bio-based Polymers and their Precursors




**11:40 Tecnon OrbiChem**   
**Philippa Davies**  
Overview on Markets of Bio-based Building Blocks

### 12:10 LUNCH BREAK



**13:50 Wobalt Expedition Consultancy**   
**Dr. Wolfgang Baltus**  
Emerging Bio-based Economies in Asia - Challenges and Opportunities



**14:10 narocon Innovation Consulting**   
**Dr. Harald Kaeb**  
“Bagislation” in Italy and France: Market Motor for Bio-based Plastics?



**14:40 nova-Institut GmbH**   
**Michael Carus**  
Highlights from nova Research in 2016


### 15:10 COFFEE BREAK

### STANDARDISATION, LABELLING AND CERTIFICATIONS




**CHAIRWOMAN**  
**Muriël Dewilde**  
**Bio Base Europe Pilot Plant** 




**15:40 nova-Institut GmbH**   
**Lara Dammer**  
News from Standardisation, Labelling and Public Procurement of Bio-based Products



**16:00 Roundtable on Sustainable Biomaterials (RSB)**   
**Marcelle Peuckert**  
Driving the Development of the Bioeconomy



**16:20 ISCC System GmbH**   
**Dr. Norbert Schmitz**  
Sustainable Supply Chains and Certification 4.0 – Core Building Block for Bio-based Materials

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## INNOVATION AWARD "BIO-BASED MATERIAL OF THE YEAR 2017"



**CHAIRMAN**  
**Michael Carus**  
nova-Institut GmbH



**16:50 AWARD SPONSOR**  
**Gordana Hofmann-Jovic**  
InfraServ GmbH & Co. Knapsack KG



**17:00 BIO-LUTIONS GmbH**   
**Eduardo Gordillo**  
BIO-LUTIONS Fibres



**17:10 Cooper Tire Ltd**   
**Chuck Yurkovich**  
Guayule Natural Rubber for Tire Application



**17:20 HEXPOL TPE**   
**Dr.-Ing. Thomas Köppel**  
Dryflex® Green



**17:30 Paptic Ltd**   
**Tuomas Mustonen**  
PAPTIC® – The Next Generation of Paper



**17:40 Patagonia Inc.**   
**Gabriel Davies**  
Patagonia Yulex R3 Wetsuit



**17:50 Phytowelt Green Technologies GmbH**   
**Janin Wascinski**  
Chiral Raspberry Fragrance

**18:00 Voting**

**20:00 Dinner Buffet and Innovation Award Ceremony**

## Advisory Board



**Wobalt Expedition Consultancy**   
**Dr. Wolfgang Baltus**



**Wageningen University**   
**Christiaan Bolck**



**Flemisch Institute for Technological Research (MITO)**   
**Prof. Dr. Ludo Diels**



**Tecnon OrbiChem Ltd.**   
**Doris de Guzman**



**Hochschule Bremen – City University of Applied Sciences**   
**Prof. Dr.-Ing. Jörg Müssig**



**Jan Ravenstijn Consulting**   
**Prof. Jan Ravenstijn**



**CLIB2021**   
**Dr. Thomas Schwarz**



**IBB Netzwerk**   
**Prof. Dr. Haralabos Zorbas**

## Programme | 2<sup>nd</sup> Conference Day | 11 May 2017

### BIO-BASED BUILDING BLOCKS AND PLATFORM CHEMICALS



**Chairmen: Christiaan Bolck, Wageningen UR**   
& **Prof. Dr. Ludo Diels, VITO** 



**9:00 MetGen** 

**Matti Heikkilä**

Industrial Enzymes for Cellulosic Sugars and Beyond – the Power and Speed of Tailored Solutions



**9:20 AVALON Industries** 

**Thomas Kläusli**

Everything from Sugar – 5-HMF as Key Enabler in Bio-based Chemistry



**9:40 Reverdia** 

**Alexander Krapivin**

Biosuccinium® – Unlocking the Bio-based Polymers of Tomorrow



**10:00 InnoSyn B.V.**  / **Royal DSM** 

**Dr. Marijn Rijkers**

Gamma-Valerolactone from Bio-based Levulinic Acid as a Sustainable and Less Harmful Alternative for Gamma Butyrolactone



**10:20 Green Biologics** 

**Tim Davies**

A Chemical Reaction: Changing Commodities Into High Value Specialty Products

### 10:40 COFFEE BREAK



**11:10 Borregaard** 

**Gudbrand Rødsrud**

Established and New Applications for Lignin, Hemicellulose and Cellulose



**11:40 Avantium Chemicals BV** 

**Ed de Jong**

Renewable Chemicals into Bio-based Materials: From Lignocellulose to PEF



**12:10 DuPont Industrial Biosciences** 

**Christian Lenges**

Enzymatic Polymerization: Biotechnology Enabled Polysaccharides & Applications

### 12:30 LUNCH BREAK



**14:00 Ynsect** 

**Nathalie Berezina**

Insects – Novel Source of Biomaterials

### OLEOCHEMICALS AND BIO-BASED POLYMERS



**CHAIRMAN**

**Prof. Dr.-Ing. Jörg Müssig**

**Hochschule Bremen – City University of Applied Sciences** 



**14:20 Cathay Industrial Biotech Ltd.** 

**Alex Kedo**

Developments in 1,5-Pentanediamine based Polyamides as an Innovative Next-Generation Bio-based and Renewable Polymer



**14:40 PolyLabs** 

**Kristians Grundštoks**

Bio-based Polyols for the Polyurethane Industry from Tall Oil and Rape Seed Oil



**15:00 Corbion** 

**Francois de Bie**

Total and Corbion Join Forces to Bring Innovation to the PLA Market



**15:20 Peter Greven GmbH & Co. KG** 

**Peter Greven**

Innovative and Sustainable Solutions from the Oleochemical Industry

### 15:40 COFFEE BREAK



**16:10 FORESA** 

**Antonio Touriño Couso**

Bio-Solutions and Actual Alternatives in the Wood Based Industry to Obtain a Greener Foot Print



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## START-UPS



### CHAIRWOMAN

**Dr. Eva Waldvogel-Mohr**  
Forschungszentrum Jülich GmbH,  
Projekträger Jülich



The following two start-ups have been selected by the Bundesministerium für Bildung und Forschung (BMBF), Federal Ministry of Education and Research



**16:30 HPX Polymers GmbH**   
**Dr. Dr. Uwe Bölz**

Development of New Bio-degradable Materials Based on Waste Materials from Industrial Processing of Renewable Resources



**16:45 Autodisplay Biotech GmbH**   
**Martin Bellof**

Utilisation of Empty Fruit Bunches – a Step Towards a More Sustainable Production of Palm Oil



**17:00 Anellotech Inc.**   
**David Sudolsky**

Moving Towards 100% Bio-based w/Bio-TCat BTX & Olefins



### CHAIRMAN

**Prof. Dr. Haralabos Zorbas**  
IBB Netzwerk



**17:15 Dust BioSolutions GmbH**   
**Martin Spitznagel**

Turning Dust into Stone (with the Help of Bacteria)



**17:30 AEP Polymers Sri**   
**Elena Benedetti**

Bio-based Phenolics: Development of New Industrial Polymers for Fiber-Reinforced Composites and Polyurethane Foams



**17:45 Syngulon**   
**Guy Hélin**

Synthetic Biology Technology to Boost Green Chemicals Production

## 18:00 NETWORKING & SNACKS



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## Innovation Award “Bio-based Material of the Year 2017” “Top 6” candidates nominated!

For the tenth year in a row, the Innovation Award “Bio-based Material of the Year” will be awarded to the young, innovative bio-based material industry, finding suitable applications and markets for bio-based products. The competition focuses on new developments in these areas, which have had (or will have) a market launch in 2016 or 2017.

This year, six bio-based materials and products have been nominated for the Award by the advisory board – out of more than 20 submitted products. The nominated companies are from the Belgium, Finland, Germany and the United States.

In a short 10-minute presentation, each of the six companies will introduce its innovation. The three winners will be elected by the participants of the International Conference on Bio-based

Materials, 10–11 May 2017 in Cologne, Germany, and awarded with a prize, sponsored by InfraServ GmbH & Co. Knapsack KG at the dinner buffet.



## Nominees for the Innovation Award “Bio-based Material of the Year 2017”



HEXPOL TPE (BE/SE): Dryflex® Green



Phytowelt Green Technologies (DE): Chiral Raspberry Fragrance



Cooper Tire (US): Guayule Natural Rubber For Tire Application



Paptic (FI): PAPTIC® – The Next Generation of Paper



Patagonia (US): Patagonia Yulex R3 wetsuit



BIO-LUTIONS (DE): BIO-LUTIONS Fibres

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## The “Top 6” candidates are:

### 1) BIO-LUTIONS GmbH

#### BIO-LUTIONS fibres (up-cycled agricultural residuals)

With its innovative mechanical process, bio-lutions produces high performance ecologically sustainable packaging and disposable tableware made directly from agricultural residuals. Converted into self-binding natural fibres, this innovation lets the contaminating and energy-intensive process of cellulose extraction to be a thing of the past. The final products can either decompose under normal conditions, be used for biogas production and can be recycled or burned with a nearly CO<sub>2</sub> neutral carbon footprint. Local raw material, local production and local market – decentralisation is the key.

### 2) Cooper Tire Ltd

#### Guayule natural rubber for tire application (guayule polymer - polyisoprene)

Guayule is a shrub that grows in regions such as the Southwestern U.S. It holds promise as a source of rubber for the tire industry – a possible alternative to Hevea rubber, which could be in short supply in the future and is subject to dramatic price fluctuations. This year, Cooper and its consortium partners completed a five-year bio-material study to assess how guayule rubber could be used in modern passenger car tires. Key wins include among others the creation of the first ever concept tire where all of the natural and synthetic rubber has been replaced with guayule.

### 3) Hexpol TPE

#### Dryflex® Green (bio-based thermoplastic elastomer)

Dryflex® Green is a family of bio-based thermoplastic elastomers (TPE). They are opening up previously unreachable solutions to the bio-based thermoplastic market by covering a wider range of hardnesses, including softer grades, while incorporating high levels of renewable content to over 90%. Hexpol has also developed compounds using organic fillers from plants, crops or trees; these give additional organic appearance and haptics. Dryflex® Green TPEs are highly customisable, with grades tailored to meet specific application requirements to give manufacturers of household goods, sports equipment, toys, infant care and packaging new opportunities for sustainability.

### 4) Paptic Ltd

#### PAPTIC® – the next generation of paper (novel renewable, recyclable and reusable material)

Paptic is replacing oil based plastics with bio-based, recyclable and reusable PAPTIC® material, which uses a novel wood fibre for a bioplastic composite paper combining the benefits of paper, plastics and textiles. First application of PAPTIC® is carrier bags, addressing the EU directive target for 55% reduction of plastic bag use by 2019. PAPTIC® bags have been launched to market in June 2016. The patented PAPTIC® technology is based on foam forming technology which is using 30% less energy and enabling up to 50% light weighting of products, when compared to traditional papermaking.

### 5) Patagonia Inc.

#### Yulex R3 wetsuit (85% natural rubber/15% synthetic rubber by polymer content, recycled polyester content in linings)

Wetsuits have always relied on neoprene (polychloroprene), which is non-renewable with energy-intensive manufacturing process. For eight years, Patagonia has been pioneering natural rubbers and sharing R&D with the surf/wetsuit industry to encourage a shift towards cleaner materials. In 2016, Patagonia launched the world's first neoprene-free wetsuit, reducing their CO<sub>2</sub> emitted in the polymer manufacturing by up to ~80% compared to conventional neoprene. The new plant-based material pioneered by Yulex Corp is sourced from Hevea rubber that is independently certified to the FSC® standard by the Rainforest Alliance, uses ambient rainfall and recycled water in manufacturing.

### 6) Phytowelt GreenTechnologies GmbH

#### Chiral raspberry fragrance ((R)-alpha-lonone)

The (R)-alpha-lonone is the main component of raspberry fragrance. Usually it is synthesized chemically as a racemate which contains the enantiomer (R)-alpha-lonone as well as the distomer (S)-alpha-lonone. The (S)-form has a woody and musty flavour which gives the chemical racemate a different and impure fragrance. However, it is complex and uneconomic to separate enantiomers and distomers. With its patented process, Phytowelt is not producing any of the distomers but only the enantiomer. Therefore, the raspberry fragrance is chiral pure, smells intensive and is, because of the biotechnological production, a natural flavour component. This raspberry fragrance is the first natural in the market which can be produced in high quantity as well as quality resulting in a high competitive advantage.



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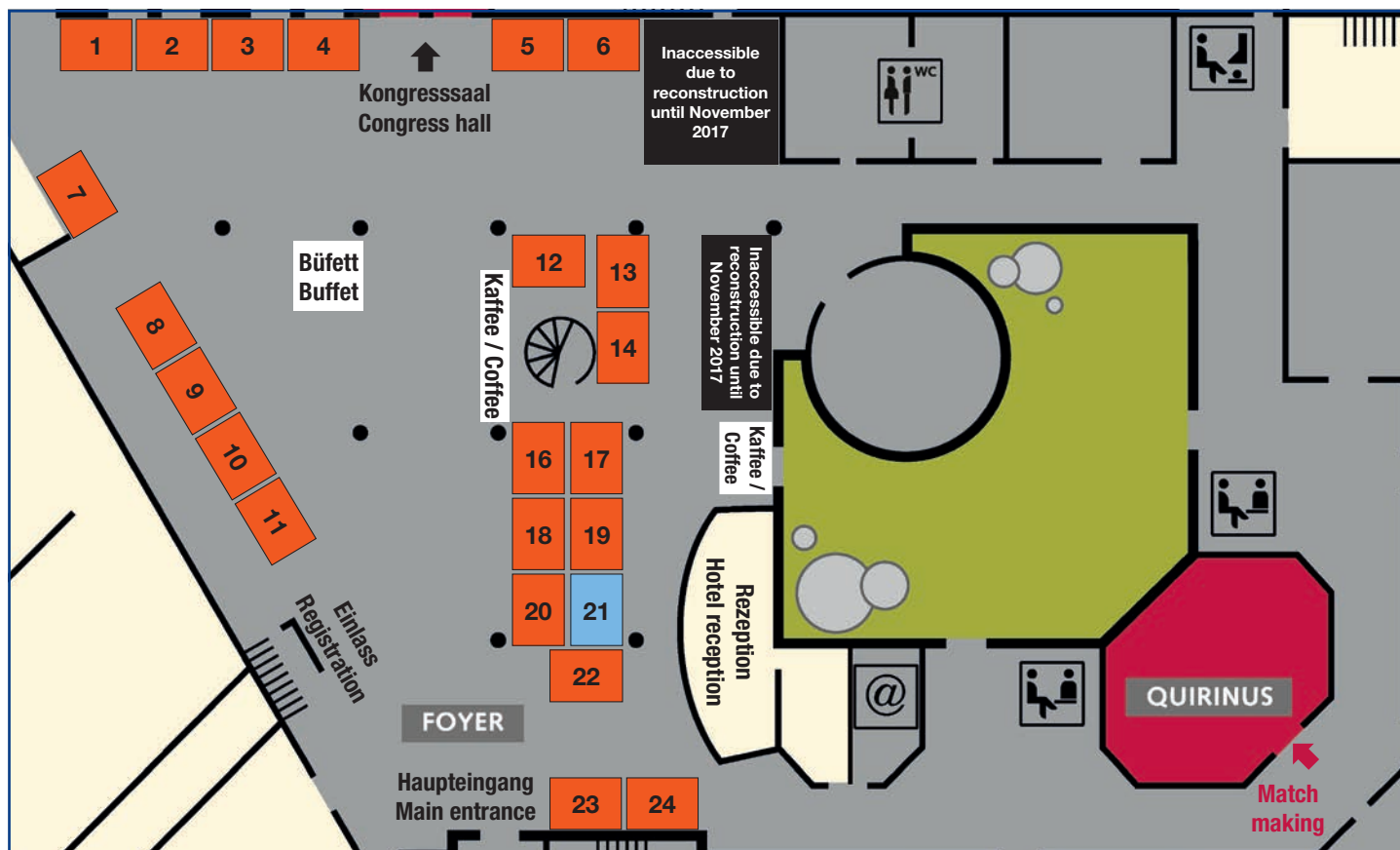
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## Exhibitors

No. 1: Tecnon OrbiChem Ltd

No. 2: Flanders Investment & Trade

No. 3: Addiplast Group

No. 4: DIN CERTCO GmbH

No. 5: Buss AG

No. 6: Fraunhofer UMSICHT

No. 7: InfraServ GmbH & Co. Knapsack KG

No. 8: Jäckering Mühlen- und Nahrungsmittelwerke GmbH

No. 9: ZENIT GmbH

No. 10: Forschungszentrum Jülich GmbH

No. 11: nova-Institut GmbH

No. 12: Borregaard

No. 13: Superbio

No. 14: Bio Base Europe Pilot Plant

No. 16: ISCC System GmbH

No. 17: Biobased Press

No. 18: LAT Labor -und Analysen-Technik GmbH

No. 19: m2p-labs GmbH

No. 20: NOVAMONT S.P.A.

No. 21: Available

No. 22: VTT Technical Research Centre of Finland

No. 23 & 24: Bio-based Material of the Year 2017

The exhibition hall plan can be found at:

[www.bio-based-conference.com/exhibitorinfo](http://www.bio-based-conference.com/exhibitorinfo)

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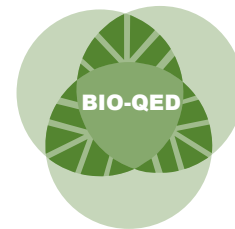


[www.bio-based.eu/news](http://www.bio-based.eu/news)

# BIO-QED Stakeholder Workshop, May 10<sup>th</sup> 2017, Room Laurentius

Workshop starts at 14:00, Maternushaus, Cologne, Germany, Fee: 80 € (+ 19% VAT)

All conference participants are welcome to join for free – but please register first!



## What is the project about?

Opening new industrial routes for the production of the important chemicals BDO and IA from renewable sources rather than petrochemical sources is, in summary, the aim of the BioQED project. In this EU FP7 project, 13 partners from 7 countries (Italy, Belgium, Germany, the Netherlands, Croatia, Spain and the USA) bundled their strengths to successfully create value chains from the renewable resource all the way to the finished product. For more information about the project, please visit <http://bio-qed.eu>

## What is the workshop about?

This workshop will be organized in conjunction with the 10<sup>th</sup> International Conference on Bio-based Materials. Both high-level events will focus on bio-based building blocks and platform chemicals. After a short overview of the project and the market for the BioQED platform chemicals BDO and IA, the rest of the workshop will focus on the applications of these value chains. Don't miss this opportunity to learn, discuss and network with the leading players in the bioeconomy!

Find the programme on <http://bio-qed.eu/workshop/programme>, register now at <http://bio-qed.eu/workshop>



BIO-QED receives funding from the European Community's Seventh Programme for research, technological development and demonstration under grant agreement No. FP7-613941.

**Discount offer for workshop participants: 10% discount for the conference on 10 – 11 May 2017**

30. Mai 2017 in 52146 Würselen bei Aachen

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- Gelegenheit zum fachlichen Austausch und Netzwerken



## Anmeldung

[www.bio-based.eu/biokomposit](http://www.bio-based.eu/biokomposit). Die Veranstaltung ist kostenfrei, Anmeldeschluss ist der 19. Mai 2017

Kontakt bei Rückfragen: nova-Institut GmbH  
Dr. Asta Partanen, [asta.partanen@nova-institut.de](mailto:asta.partanen@nova-institut.de)  
+49 (0)2233 4814-40

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FREE VTT WEBINAR - SEP 27, 2017



## Green plastics without the bio-premium

FDCA and muconic acid transforming the industry



### Key learning objectives:

- Learn about the patent landscape and the direction of R&D trends for these bio-based plastics
- Why are we still using crude oil and why is this a problem?
- Learn about these bio-based plastics and that they are better in both cost and properties
- Learn how FDCA and muconic acid can transform the bio-based plastics industry

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Messe Stuttgart, Germany

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Advanced Lightweight  
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# Save the Date: nova-Institute Events in 2017 / 2018



## nova Session

**Bio-based Building Blocks and Polymers  
- Markets, Trends and Innovations**

**24 May 2017, 10:00 - 16:30 h**  
**Airport Cologne/Bonn, Germany**  
[www.bio-based.eu/nova-sessions](http://www.bio-based.eu/nova-sessions)



**Biokomposit für ökonomisches und ökologisches Design  
- Neues Material für Automobile Anwendungen**

Workshop für Entscheider, Fach- und Führungskräfte aus der Automobilindustrie

**30 May 2017**  
**Würselen near Aachen, Germany**  
[www.bio-based.eu/biokomposit](http://www.bio-based.eu/biokomposit)



**European Industrial  
Hemp Association (EIHA)**

14<sup>th</sup> International Conference, June 7<sup>th</sup>-8<sup>th</sup> 2017

**7 - 8 June 2017**  
**Maternushaus, Cologne, Germany**  
[www.eiha-conference.org](http://www.eiha-conference.org)



**Biocomposites Conference  
Cologne (BCC)**

7<sup>th</sup> Conference on Wood and Natural Fibre Composites

**6 - 7 December 2017**  
**Maternushaus, Cologne, Germany**  
[www.biocompositesc.com](http://www.biocompositesc.com)



**6<sup>th</sup> Conference on  
CO<sub>2</sub>**  
Carbon Dioxide  
as Feedstock for  
Fuels, Chemistry  
and Polymers

**15 - 16 March 2018**  
**Maternushaus, Cologne, Germany**  
[www.co2-chemistry.eu](http://www.co2-chemistry.eu)



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**All conferences at [www.bio-based.eu](http://www.bio-based.eu)**





# International Conference of the European Industrial Hemp Association (EIHA)

[www.eiha-conference.org](http://www.eiha-conference.org)

**7-8 June 2017**

**Maternushaus, Cologne (Germany)**



**++ Cultivation ++ Processing ++ Economy ++ Sustainability ++ Innovation ++**



© Hempro, Hemcore, NPSP Composites (2), Hemp Technology

**Don't miss the biggest industrial hemp event in 2017 – worldwide!**

### Applications

- Bio-Composites
- CBD as Food Supplement and Pharmaceutical
- Construction
- Fibres & Shives
- Hemp Seeds, Oil and Proteins
- Insulation
- Textiles

### Spectrum of Participants

- Cultivation Consultants
- Engineers
- Hemp Food and Feed Industry
- Natural Fibre Industry
- Pharmaceutical Industry
- Research and Development
- Traders and Investors

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Largest biocomposites conference in 2017

# Biocomposites Conference Cologne

7<sup>th</sup> Conference on Wood and Natural Fibre Composites

6–7 December 2017, Maternushaus, Germany

### Your contacts



**Dr. Asta Partanen**  
Programme, Sponsors,  
Biocomposite Award

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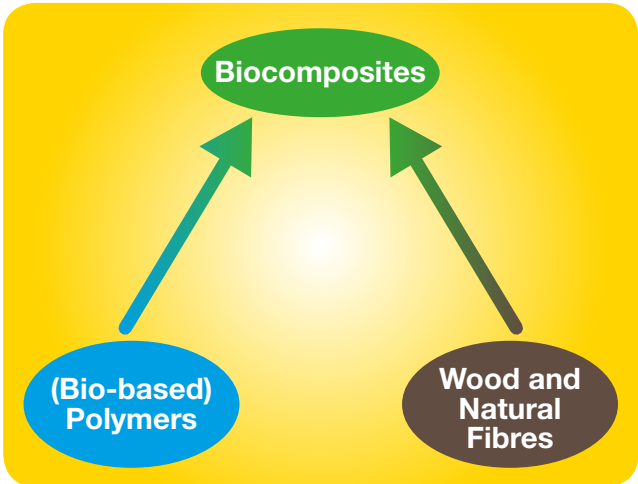
**Dominik Vogt**  
Conference Manager,  
Exhibition

Phone: +49 (0) 22 33 – 48 14 49  
dominik.vogt@nova-institut.de

The world’s most comprehensive biocomposite conference and exhibition will take place in the center of Cologne. On the first day of the conference you will be able to vote for the “Biocomposite of the Year 2017” and stay in touch with the latest innovations in the field of composites. Excellent networking opportunities are offered, as more than 250 participants and 30 exhibitors mainly from industries are expected!

### Market opportunities through intersectoral innovation in biocomposites

The main topics of the conference are biocomposites in the automotive industry, in 3D printing and in other high-tech applications.



Organiser  
**nova** Institute  
for Ecology and Innovation  
www.nova-institut.eu



www.biocompositesc.com



## Bio-based Polymers & Building Blocks



**Bio-based polymers, a revolutionary change**  
– Comprehensive trend report on PHA, PLA, PUR/TPU, PA and polymers based on FDCA and SA: Latest developments, producers, drivers and lessons learnt  
published 2017-04 / 95 pages / 1,200 €

## Biocomposites



**Wood-Plastic Composites (WPC) and Natural Fibre Composites (NFC): European and Global Markets 2012 and Future Trends in Automotive and Construction**  
published 06-2015 / 90 pages / 500 €

## Industrial Hemp & Derivates



**Policies impacting bio-based plastics market development**  
published 2017-03 / 57 pages / 400 €



**Market Study on Cannabidiol (CBD)**  
published 2016-04 / 49 pages / 500 €



**Bio-based Building Blocks and Polymers – Global Capacities and Trends 2016-2021**  
published 2017-02 / 249 pages / 2000 €



**Market Study on Hemp Food**  
published 2016-04 / 30 pages / 200 €

## Still available



**Asian markets for bio-based chemical building blocks and polymers**  
published 2017-01 / 53 pages / 750 €



**Bio-based Building Blocks and Polymers in the World – Capacities, Production and Applications: Status Quo and Trends Towards 2020**  
published 2015-12 / 474 pages / 1,000 €



**Consumption of biodegradable and compostable plastic products in Europe**  
published 2016-04 / 330 slides / 3.500 €



**Bio-based Polymers in the World – Capacities, Production and Applications: Status Quo and Trends towards 2020**  
published 2013-03 / 360 pages / 500 €

nova Session

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