

Press release

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Highly efficient and cost-effective CO₂ utilization will spark a revolution – Leading players will showcase their latest technological breakthroughs in Essen (Germany)

nova-Institute is proud to host the “4th Conference on Carbon Dioxide as Feedstock for Fuels, Chemistry and Polymers“ on 29 - 30 September 2015 in Essen, Germany (<http://co2-chemistry.eu>) and invites interested stakeholders to register. More than 200 experts are expected to join Europe’s largest event on Carbon Capture and Utilization (CCU). The main focus of the conference topic is on technological breakthroughs for an efficient and low-cost utilization of CO₂ as energy source and for chemical building blocks.

It sounds like a daring vision – but could become reality sooner than you think!

Already now, the implementation of carbon dioxide utilization as a raw material in a Circular Economy and as an energy source takes shape at a fast pace.

Everyone is fascinated to hear about it for the first time: We can use various technologies to produce gaseous and fluid fuels (e.g. methane, petrol, diesel, kerosene) from captured CO₂ and renewable energies like solar or wind energy. With the same technologies, we can also produce chemical building blocks that can supply basically all chemical and plastics industries.

Leading players from Iceland, Israel, the Netherlands, USA, South Africa and Germany will showcase their latest technological breakthroughs at this year’s conference. Be inspired by:

- **Carbon Recycling International (Iceland)** is a world leader in power-to-methanol technology: they produce methanol from carbon dioxide, hydrogen, and electricity for energy storage, fuel applications, and efficiency enhancement. CRI is a technology provider to energy companies and to producing industries. The expanded plant in Svartsengi produces 4,000 tons of renewable methanol per year. Further renewable methanol plants, based on the same technology, are planned in Germany (supported by Horizon2020), Spain and Belgium.
Speaker: K-C Tran (CEO)
- **NewCO₂Fuels (Israel)** has developed an innovative technology to convert CO₂ – from industrial factories – and water into syngas. This is then used to produce synthetic transportation fuels or chemicals via presently available technologies. Utilizing the industry’s excess heat, syngas can be converted into methanol with a 40 percent conversion efficiency rate. According to the company, fuels and chemicals are competitive at current market prices without incentives thanks to the very high efficiency rate of the NCF system. Project funding was provided by the Israeli energy sector, the Israeli Ministry of Energy and the BIRD Foundation.
Speaker: Julie Horn (Business Development Manager)
- **Covestro (formerly Bayer MaterialScience) (Germany)** uses carbon dioxide as a building block for premium plastics. The planned start of the production of CO₂-based

polyurethane in 2016 in Dormagen (Germany) is getting closer and the production line is currently under construction. The last major part – a CO₂ tank – is due to be installed in autumn 2015. The production capacity will be 5,000 tons per year. Also additional CO₂ utilization pathways for chemicals and polymers are under development. Project funding by the German Ministry of Education and Research.

Speaker: Dr. Christoph Gürtler (Head of the Catalysis Program)

- **sunfire (Germany)** produces synthetic hydrocarbons such as synthetic kerosene, benzene and diesel (“power-to-liquids”) from CO₂, water and green electricity on pilot scale. The process works with high-temperature fuel cells and reversible electrolyzers, as well as Fischer-Tropsch synthesis for the fuel production. AUDI and Boeing are strategic partners. The synthetic fuels are of highest purity and would allow for more efficient engines. Project funding by the German Ministry of Education and Research.
Speaker: Christian von Olshausen (CTO)
- **CarbonOrO (The Netherlands)** has developed a technology for CO₂ capture using low-temperature amine desorption. The carbon capture low-temperature solution (~70°C) consists of amines, polymers and a number of solvents. Using waste heat, this development enables the amine scrubber to function on a stand-alone basis, requiring no energy from the outside and making it the go-to alternative in the carbon capture industry. The current focus of CarbonOrO is on biogas upgrading, a worldwide and steadily growing market. In the medium and long term, CarbonOrO plans to address CO₂ emission reductions in energy intensive industries.
Speaker: Pieter Verberne (Founder and general manager), former general manager of energy at AkzoNobel and COO of energy exchange company APX.
- **Joint Center for Artificial Photosynthesis (JCAP) (USA)** is the nation’s largest research program dedicated to the development of an artificial solar-fuel generation technology. JCAP is the central hub for solar-fuels research teams across the United States, focused on achieving the major scientific breakthroughs needed to produce liquid transportation fuels using artificial photosynthesis (solar-to-hydrogen). Scientists from JCAP developed “artificial leaves” to replicate the natural process of photosynthesis that plants use to convert sunlight, water, and carbon dioxide into oxygen and fuel in the form of carbohydrates, or sugars.
Speaker: Prof. Dr. Nathan Lewis (Scientific Director of JCAP, Project Co-Leader for the JCAP Light Capture and Conversion Project)
- **Council for Scientific and Industrial Research (CSIR) (South Africa)** are investigating the potential of wind, solar and other renewable energies for Power-to-X in the South African process industries. The idea is to improve the national competitiveness in the global economy. The researchers found that renewable energy from South Africa’s first wind and solar (photovoltaic) projects already created R0.8 billion more financial benefits to the country than they cost during 2014. The visionary concepts are presented for the first time in Europe.
Speaker: Prof. Dr. Tobias Bischof-Niemz (Centre Manager: Energy)

In terms of political support for CO₂ utilization, good news come from Brussels: CO₂-based fuels are now explicitly included in the latest version of the Renewable Energy Directive (RED) reform, and can be used instead of fuels made from biomass in order to fulfil the renewable fuels quotas. Representatives of the European Commission will present the current status of political reform and will discuss future prospects for developments after 2020.

Do not miss the latest technological and political developments from this highly impressive and dynamically evolving future-oriented field.

Detailed information about the programme can be found at: <http://co2-chemistry.eu/programme>

Please download pictures at the following link. Use of the material is free of charge for press purposes.

<http://co2-chemistry.eu/media/files/press%20release/CO2-Conference-2015.zip>

The zip-file includes:

4th-CO2-Conference_Logo.jpg – conference logo

Participants-at-the-3rd-CO2-Conference-2014.jpg – picture from last years conference

Responsible under press legislation (V.i.S.d.P.):

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