

[Home](#) ■ [News](#) ■ [Huber Group International News](#)

## The winners of the Huber Technology Prize 2014 "FUTURE WATER" have been determined

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Ceremonial award of the prizes endowed with EUR 10,000 in the Berching town hall by Bavarian Environment Minister Dr. Marcel Huber

The mechanical, chemical and thermal energy in wastewater can contribute a substantial share to the use of renewable energy. Moreover, even the "waste" produced on sewage treatment plants is increasingly used as basis material for the production of valuable substances. This issue therefore was made the subject of this year's international Huber Technology Prize 2014: Resources and Energy from Wastewater. A lot of students from Germany and abroad submitted their ideas, proposals and elaborate project works. It was not easy for the jury to choose the winners from the numerous candidates, but finally Prof. Dr. Wilderer (TU Munich, Institute for Advanced Study), Dr. Drewes (TU Munich), Dr. Bischof (University of Applied Sciences Amberg-Weiden) and Dr. Grienberger (Chief Technology & Innovation Officer of HUBER SE) made their choice.

In an official ceremony at the Berching town hall on 28 July 2014 the winners were announced and the prizes awarded to them by Bavarian Environment Minister Dr. Marcel Huber after the invited guest had been welcomed by Ludwig Eisenreich, mayor of Berching, and Willibald Gailler, head of the district authority as well as by Georg Huber, CEO of HUBER SE. Bavarian Environment Minister Marcel Huber pointed out that wastewater is a heat and energy source that will gain in importance in the future and a liquid raw material that must increasingly be utilised. In order to tap into the unused potential of discharged water the Bavarian Environment Ministry supports the practical implementation of innovative technologies and ideas. In Bad Abbach, Bavaria, for example, a pilot project for the energetic optimisation of smaller sewage treatment plants is currently carried out. The project is not only of regional importance but meaningful across the whole of Bavaria. Due to oxygen-free sewage sludge stabilisation biogas is generated. Two third of the power demand on site can be covered with this biogas.

Prof. Dr. Wilderer explained the spirit and purpose of the Huber Technology Foundation and why the competition has for the first time been split into two categories, namely 'students' and 'doctoral researchers'. In his laudatory speech Prof. Dr. Bischof announced that two winners per category have been selected due to the high quality papers submitted by the competition participants.

In the category 'doctoral reseachers' the prize money of € 2,500 went to Ms. Sabine Sané from Freiburg (Germany) and Mr. Quilin Wang from Brisbane, Australia.

Ms. Sané is a doctoral student of the research group for bioelectrochemical systems at the Institute for Microsystems Technology of the Albert-Ludwigs University of Freiburg. In her paper "Energy-efficient removal of micro pollutants from wastewaters with hybrid microbial/enzymatic bioelectrical systems" she presented a bioelectrochemical system for the removal of micro pollutants. Her concept is highly innovative and takes up several ideas some of which have already been investigated individually and separately (enzymatic degradation of trace substances using fungi, electrochemical degradation of trace substances and energy generation). From the point of view of conventional wastewater technology, modern interdisciplinary issues are raised and combined with each other. Her idea shows new ways that are very interesting under scientific aspects and could stand for a real change in wastewater treatment.

Qilin Wang, doctoral student at the Advanced Water Management Centre of the University of Queensland in Brisbane describes an approach how to improve the energy balance of a sewage treatment plant with the use of nitrous acid. His concept for an economical sludge treatment appears very innovative, well thought out and feasible in practice. Mr. Wang has proven individual steps of the described process by own preliminary studies.

In the category 'students' the prize money of € 2,500 went to Ms. Alexandra Fumasoli from Switzerland and a team of two students from the University of Applied Sciences Amberg-Weiden, Ms. Barbara Eschlbeck and Mr. Dominik Peter.

Alexandra Fumasoli from the Swiss Federal Institute of Aquatic Science and Technology in Dübendorf describes a possibility how to produce in a simple way struvit (plant fertilizer) from urine with the use of an electrode and in this way recover the precious phosphate. Her idea is highly innovative and could represent a good solution for decentralized applications, also on a smaller scale.

Barbara Eschlbeck and Dominik Peter, both students in the Master's degree course 'Environmental Technologies' at the University of Applied Sciences Amberg-Weiden, convinced the jury with their topic 'Integration of a sewage treatment plant into the energy turnaround; MembraneBioReactor and power-to-gas – a combination with a future'. They describe a very innovative idea which represents a useful addition under the aspect of the energy turnaround and the resulting oversupply of electricity ('much wind and much sun at the same time') as well as under the aspect of wastewater treatment. Also the combination with modern membrane treatment systems and the use of permeate as basic product for electrolysis is very innovative.



*The awarded winners together with Bavarian Environment Minister Dr. Marcel Huber, executive committee and board of Huber Technology Foundation*

After the official award ceremony all winners and guests got together to enjoy a 'Bavarian buffet' in the assembly room of the town hall to conclude the evening in an informal atmosphere.

The word "wastewater" is commonly associated with a negative image. It can sicken people, spread unpleasant odours and contaminate the environment. To avoid such negative effects and support the natural water cycle without damaging the environment, wastewater is treated. Wastewater has been treated under this aspect for many years, partly for decades. But not much specific attention has been paid to the individual substances contained within wastewater and not much has been done to utilize the great potential of wastewater as a resource, apart from reusing the nutrients contained. Climate change and the growing world population are however leading to a paradigm shift. For wastewater as a sink of all civilisation activities includes more than only water and nutrients. Rare earths, metals of limited availability and valuable elements are frequently contained within the wastewater generated in different fields of industry and in municipalities. The Huber Technology Prize motivates young scientists and students to go new ways for the benefit of our environment.



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