PIRAT-Systems

FINAL CONFERENCE

Bringing Chinese and German experts on wastewater and sludge treatment together to learn and connect.

9th & 10th June 2022
8 AM – 1 PM UTC+2
2 PM – 7 PM UTC+8
ONLINE

The Sino-German project PIRAT-Systems (2018-2022) investigated energy- and resource efficient solutions of wastewater and sludge treatment for Chinese conditions.

The conference will adress the topics:

- Wastewater and sludge treatment in China
- Modelling of waste-water treatment plants
- Instrumentation and control technology
- Energy efficient nitrogen removal
- Anaerobic digestion and Co-Digestion
- Environmentally friendly fertilizer

and much more.

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Energy- and Resource-efficient Wastewater Treatment Processes for China

Wastewater disposal is currently undergoing a paradigm shift from a disposal management to a resource-oriented approach, where important wastewater components are recovered and reused, and energy consumption is reduced. Through the use of innovative process technology, the energy input for wastewater treatment can be reduced while the cleaning performance is improved. In addition, new approaches allow to produce secondary raw materials, like organic residues from sewage sludge for biogas production or phosphorus fertilizer. Here, trendsetting concepts for energy-efficient wastewater treatment and for the recovery of resources from wastewater for Chinese conditions are needed.

The PIRAT Systems project followed the approach of an interdisciplinary teamwork of German and Chinese players to develop selected technologies for the Chinese market and to elaborate concepts for increasing energy efficiency and integration of sustainable components. Design approaches and simulation models were developed as planning tools as well as decision-making guides. As a result, suitable operating settings and instrumentation, control and automation (ICA) strategies for an integrated operation of the system components were determined for various boundary conditions and transition paths were evaluated. Promotion and inhibitory factors for application were identified.

The overall goal of the project was closing material and nutrient cycles while maintaining an extremely good cleaning performance of WWTP to meet the strict Chinese boundary values and contributing to the improvement of the environmental situation.

The project partners

TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

TONGJI UNIVERSITY

University of Applied Sciences HOCHSCHULE EMDEN·LEER

h2 Hochschule Magdeburg • Stendal

CHINA AGRICULTURAL UNIVERSITY

UNIVERSITÄT HOHENHEIM

光大水务 Everbright Water

DGFZ e.V. Dresdner Grundwasserforschungszentrum e.V.

SOEPENBERG since 1954

LUG Engineering GmbH

BHU Umwelttechnik
Environmental Technology – Water & Sludge

umtec Siloanlagen nach Maß

THORSIS TECHNOLOGIES

Please register for the event until 31st May 2022 by scanning the QR code. For more information send an email to verena.hilgenfeldt@bauing.uni-kl.de.

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9 June 2022 – Day 1

UTC+2	UTC+8	Speaker	
08:00	14:00	Meeting Room Opening	
08:15	14:15	Reception and introduction of the project	Dr. Thu Nguyen, Projektträger Karlsruhe Prof. Yongjian Ding, University of Applied Sciences Magdeburg Prof. Dr. Heidrun Steinmetz, University of Kaiserslautern
		Background & Vision (Prof. Dr. Heidrun Steinmetz, University of Kaiserslautern)	
09:00	15:00	Requirements and state of the art in China	Prof. Dr. Xuefei Zhou, Tongji University
09:25	15:25	Current status and future challenges of the German wastewater treatment industry	Kun Zhang WWTP Sindelfingen
10:00	16:00	Anaerobic Sludge Digestion – Fact Checking	M.Sc. Mónica Vergara Araya, University of Applied Sciences Magdeburg & M.Sc. Verena Hilgenfeldt,University of Kaiserslautern
10:25	16:25	Discussion	
10:35	16:35	Break (20 Min)	
		Implementation and plant operation I (Dr. Alessandro Meda, BHU Umwelttechnik GmbH)	
10:55	16:55	Urgent challenges in plant engineering in China	tba. China Everbright Water Limited
11:20	17:20	Potential of Instrumentation and Control Technology in Wastewater Treatment	Prof. Dr. Jürgen Wiese, University of Applied Sciences Magdeburg
11:45	17:45	Co-Digestion in China – Examples and directions	Dr. Yongang Xue, Shanghai Tongji Plant Biomass Energy Co.
12:10	18:10	Anaerobic sludge treatment and Co-digestion- Experiences from Germany – Opportunities for China	Dr. Torsten Jeske, University of Applied Sciences Emden-Leer
12:35	18:35	Discussion	
12:45	18:45	Closing	Prof. Dr. Heidrun Steinmetz, University of Kaiserslautern
13:00	19:00	End of the first day	

10 June 2022 – Day 2

Speaker		UTC+2	UTC+8
Meeting Room Opening		08:00	14:00
Reception	Prof. Dr. Xuefei Zhou, Tongji University	08:15	14:15
Implementation and plant operation II (Prof. Dr. Jürgen Wiese University of Applied Sciences Magdeburg-Stendal)			
Realization of the new Chinese purification standards for new plants and retrofitting of existing plants using biofiltration technology	Dr. Shuqing Li BHU Umwelttechnik GmbH	08:35	14:35
Chemical process modeling for wastewater treatment	Prof. Dr. Felix Bilek, DGFZ- Dresdner Grundwasserforschungszentrum e.V.	09:00	15:00
Dynamic Modelling for WWTP Optimization and Planning	M.Sc. Mónica Vergara Araya, University of Applied Sciences Magdeburg	09:25	15:25
The planning tool PIRAT+	S. Arndt, Thorsis Technologies GmbH	10:00	16:00
Discussion		10:25	16:25
Break (20 Min)		10:35	16:35
Concepts and Challenges (Dr. Joachim Clemens, SF-Soepenberg GmbH)			
WWTP of tomorrow – A resource factory	M.Sc. Verena Hilgenfeldt, University of Kaiserslautern	10:55	16:55
Usage of WWTP- based fertilizer	Shoujun Yang China Agricultural University	11:20	17:20
Transformation barriers for anaerobic sewage sludge treatment and utilization in China	Dr. Martin Zimmermann ISOE GmbH	11:45	17:45
Assessment of the social benefits accruing from the struvite program	Prof. Dr. Michael Ahlheim & M.Sc. In Woo Kim, University of Hohenheim	12:10	18:10
Discussion		12:35	18:35
Closing	Prof. Dr. Heidrun Steinmetz University of Kaiserslautern	12:45	18:45
End of the conference		13:00	19:00