



上海交通大学
SHANGHAI JIAO TONG UNIVERSITY



UNIVERSITY OF
Southampton

**INTERNATIONAL WORKSHOP ON ADVANCES IN
ANAEROBIC DIGESTION AND WASTEWATER
TREATMENT FOR ENVIRONMENTAL PROTECTION
AND RESOURCE RECOVERY**

NOV. 7-8, 2015, SJTU, SHANGHAI, CHINA

Welcome address



***Zhenjia Zhang, Co-Chair, Professor
Shanghai Jiao Tong University, China***

On

behalf of the workshop organizing committee, I warmly

welcome all participants to join this exciting event in a cheerful season at Shanghai. Security of resources and energy supplies are amongst the major challenges facing governments throughout the world in the goal of achieving sustainable development. Solid waste and wastewater treatment can both offer promising contributions towards this goal, and show how science and technology can be used to achieve it in an environmentally friendly way. Prof Banks and I are committed to international collaboration in this field and this is the second in the series of workshops with invited participants from China and Australia, Japan, Korea, the US and the UK. We look forward to seeing you in Shanghai Jiao Tong University for this prestigious event.

***Charles J Banks, Co-Chair, Professor
University of Southampton, UK***



It

is a pleasure to be in Shanghai again to attend this international

workshop which is jointly organised by Shanghai Jiao Tong University and the EU FP7 ECOFUEL Project. The ECOFUEL project is now drawing to an end but our collaboration will continue for many years into the future with joint research, further workshops and exchanges. My colleagues from the Universities of Aston and Aalto are also here in Shanghai attending a parallel event on thermo-chemical conversion technologies with our partners from SJTU and Guangzhou Institute of Energy Conversion (GIEC), organised by Prof Ronghou Liu of SJTU. Our own workshop this year has a strong focus on anaerobic digestion as an emerging technology for renewable energy production and resource recovery from food waste and wastewaters. I am pleased to welcome some of the world's leading experts in this area to present their current work and share their vision for the future.





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About The Workshop

The workshop is designed to provide keynote presentations from top international experts in the fields of waste-derived renewable energy and fuels and advanced resource-efficient wastewater treatment technologies. The platform presentations will provide the focus for parallel sessions allowing the delegates to network and discuss future actions and research directions. An important aspect is the opportunity for participants to summarise their work in flash presentations accompanied by a poster session.

The Workshop topics have been chosen to address key issues relating to engineering solutions for sustainable energy and resource recovery, in areas where rapid technical advances are occurring. They also represent closely - aligned issues, with the aim of encouraging exchange of ideas between technical experts in these fields.

The Workshop has a strong practical focus with a number of key industries represented and will allow participants to explore options for translation of research ideas into commercial reality in a technically-driven field of application.

Shanghai Jiao Tong University is an outstanding venue for the workshop because of its excellent scientific and technical facilities and very strong links to industry. The campus itself is spacious, well laid out and provides an ideal environment for interaction between academics, business and industry. Shanghai is a thriving metropolis with good transport links to the rest of China and across the world.



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Workshop Theme

The application of advanced technologies to renewable energy production, resource recovery and environmental protection or remediation by biological means. The main focus is on municipal and industrial wastewaters and food wastes using anaerobic systems.

Workshop Topics

Topic 1: Food waste digestion

Topic 2: Wastewater treatment and environmental protection/remediation

Topic 3: Anaerobic membrane bioreactors



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Organizers

Shanghai Jiao Tong University

University of Southampton

Chairs

Prof. Zhenjia Zhang, Shanghai Jiao Tong University

Prof. Charles Banks, University of Southampton

Organizing And Scientific Committee

Prof. Chunjie Li, Shanghai Jiao Tong University

Prof. Craig Criddle, Stanford University

Prof. Weimin Wu, Stanford University

Dr. Sonia Heaven, University of Southampton

Dr. Yue Zhang, University of Southampton

Dr. Yongqiang Liu, University of Southampton

Sponsors

Ronser Bio-Tech Bhd (马来西亚荣事生物科技有限公司)

Hainan Litree Purifying Technology Co. Ltd, (海南立升净水器科技实业有限公司)

Beijing Windbell Technology Co., Ltd. (北京北方永邦科技股份有限公司)

Nisshinbo Chemical Co Ltd (日本日清纺化学公司)

Shanghai SINAP Membrane Tech Co., Ltd (上海斯纳普膜分离科技有限公司)

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General Information

Venue

Conference venue: No. 117 Conference Hall in Chen Rui Qiu Building, 800 Dong Chuan Rd., Min Hang District, Shanghai, China

会议地点: 上海市闵行区东川路 800 号
陈瑞球楼 117 会议室



Chen Rui Qiu Building

Accommodation

Hotel: Jinjiang Metropolo Hotel-Minhang

住宿: 锦江都城闵行 饭店

Address: No.202 Lanping Rd., Min Hang District, 200240, Shanghai

地址: 上海闵行区兰坪路 202 号, 邮编 200240

Tel: +86 21 64308121*8001

Registration

Registration desk located in the lobby of Jinjiang Metropolo Hotel-Minhang.

Operation time:

Nov.6——11:00 am.~9:00 pm.

Please Visit the Registration Desk when you arrive onsite to pick up official access badge and registration package.

Travel from Hotel to Venue

There would be a coach serving as a shuttle bus to lift you from accommodation hotel to the venue in SJTU.

The schedule is as follow:

8:30 am. heads to Venue from Hotel (after breakfast)

8:30pm. goes back to Hotel (after dinner)

All passengers should gather in the lobby of the hotel or dining hall several minutes earlier than departure time.

No.1 Entrance of SJTU



Jinjiang Metropolo Hotel--Minhang





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Program Overview

07 November 2015				
09:00	Opening			
	Prof. Zhenjia Zhang or other representative of SJTU; Prof. Charles Banks			
Food waste digestion				
	Chair	Prof. David Stuckey		
		Name	Institution	Title
09:30	1	Prof. Michael Chesshire	University of Southampton, UK	Commercial application and potential of anaerobic digestion of food waste
10:00	2	Dr. Lei Zhang	School of Environmental Science & Technology, Dalian University of Technology	Importance of trace elements in anaerobic digestion of food waste
10:30	3	Dr. Fan Lv	State Key Laboratory of Pollution Control & Resource Reuse, Institute of Waste Treatment and Reclamation, Tongji University	Anaerobic digestion of organic wastes: environmental stress, microbial response and technical solution
11:00	Coffee Break			
11:30	4	Dr. Chunfeng Chu	Shanghai Jiao Tong University	The biological fermentation process for hydrogen and methane production from food waste and microbial community analysis
12:00	5	Dr. Yue Zhang / Prof. Charles Banks	University of Southampton, UK	Potential for thermophilic digestion of food waste for energy production and resource recovery
12:30	Lunch			
Wastewater treatment and environmental protection				
	Chair	Prof. Yu-You Li		
		Name	Institution	Title
14:00	1	Prof. Craig Criddle	Stanford University	Will Anaerobic Secondary Treatment be the Key to Sustainable Wastewater Treatment
14:30	2	Dr. QingQiang Zhang	Beijing Windbell Technology Co., Ltd.	Integrated Solution based on Carbonization for CPO mill Residues
15:00	3	Jamaiatul Lailah Binti Mohd Jais	RONSER biotechnology	New biological treatment technology for domestic wastewater



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15:30		<i>Coffee</i>		
16:00	4	Tsutomu Uehara	Nisshinbo Chemical Co Ltd	Efficiency of Waste Water Treatment using Nisshinbo's Aquaporousgel
16:30	5	Prof. Weimin Wu	Stanford University	Opening a door to the remediation of plastic pollution: findings of plastic biodegradation in insect larva's guts
17:00	6	Prof. Chunjie Li	Shanghai Jiao Tong University	Study of ecological dams for aquaculture lake water quality and environment protection
08 November 2015				
Membrane bioreactors				
	Chair	Prof. Craig Criddle		
		Name	Institution	Title
09:00	1	Prof. David Stuckey	Imperial College London	Scope and application of AnMBR in wastewater treatment
09:30	2	Prof. Charles Banks	University of Southampton, UK	Kinetic control of anaerobic membrane bioreactors and its influence on operating parameters
10:00	3	Vivian Lee Jiun Joo	RONSER biotechnology	Anaerobic digestion for POME treatment
10:30	<i>Coffee Break</i>			
11:00	4	Prof. Jaeho Bae	Inha University, South Korea	Case study and research findings with anaerobic fluidized bed membrane bioreactor system
11:30	5	Dr. Haoran Pang	Shanghai Jiao Tong University	Novel integrated rural/decentralized wastewater anaerobic treatment system
12:00	6	Prof. Yu-You Li	Tohoku University Japan	Development and applications of anaerobic membrane bioreactor in Japan
12:30	<i>Lunch</i>			
14:00	Poster session			
	Poster session including flash presentations			
	<ol style="list-style-type: none"> Haoshu Wang, Zhejiang University, Equipments for kitchen waste pretreatment Yong Qi, Zhejiang University, A comparison of microbial characteristics between the thermophilic and mesophilic anaerobic digesters exposed to elevated food waste loadings He Song, University of Southampton, Effect of organic loading on anaerobic digestion of source-segregated domestic food waste Yajie Li, Shanghai Jiao Tong University, An advanced anaerobic biofilter with effluent recirculation for phenol removal and methane production in disposing coal gasification 			





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	wastewater 5.Xianchao Qin , Shanghai Jiao Tong University, Microbial Community Structure Analysis of Sludge in the Bio-reactors of Modified Starch Wastewater Processing 6.Lingfang Li , Shanghai Jiao Tong University, A pilot of advanced treatment for domestic wastewater with RO membrane 7.Zhenjiang Yu , Shanghai Jiao Tong University, Performance of Novel Ag-n-TiO ₂ /PVC Reinforced Hollow Fiber Membrane Applied in Water Purification: In-Situ Antibacterial Property and Resistance to Biofouling 8.Zhifan Ni , Shanghai Jiao Tong University, Water Purification Mechanism of Biofilm and Aquatic Plant in Eco-dam
	Discussion (parallel sessions)
15:00	1 Potential for food waste digestion in China and south-east Asia Chairs: Prof. Michael Chesshire, Dr. Fan Lv
	2 Advantages and disadvantages of alternative AnMBR configurations Chairs: Prof. Charles Banks, Prof. Jaeho Bae
	3 Potential for domestic wastewater treatment using anaerobic technologies Chairs: Prof. Weimin Wu, Dr. Yue Zhang
16:00	Coffee Break
16:30	Closing session Brief reports from Chairs of discussion sessions and closing comments from Prof Zhang

INTRODUCING WORLD CLASS CUTTING EDGE BIOLOGICAL WASTE WATER TREATMENT TECHNOLOGIES

MASS BIO-SYSTEM (MBS)
Net capacity: 100-2000 m³/d
MLSS: 10-15 g/L
Pretreat: None
Treated water effluent: 95-98%
Lower power consumption: 0.1-0.2 kWh/m³

SEWERAGE INDUSTRY (SII)
SII1 Coverage: 100% (Sewerage treatment)
SII2 Coverage: 100% (Sewerage treatment)
SII3 Coverage: 100% (Sewerage treatment)

EXISTING WASTE WATER TREATMENT TECHNOLOGIES

Technology	MLSS (g/L)	MLR (g/g.d)	MLVSS (g/L)	MLSS (g/L)	MLR (g/g.d)	MLVSS (g/L)
Activated Sludge	3-5	0.5-1.0	2-3	3-5	0.5-1.0	2-3
MBR	10-15	1.0-1.5	8-10	10-15	1.0-1.5	8-10
MBR-1	10-15	1.0-1.5	8-10	10-15	1.0-1.5	8-10
MBR-2	10-15	1.0-1.5	8-10	10-15	1.0-1.5	8-10

AQUACULTURE (Over The Counter)

Model	Volume (m ³)	Power (kW)	MLSS (g/L)	MLR (g/g.d)	MLVSS (g/L)
AS-100	100	1.0	10	1.0	8
AS-200	200	2.0	10	1.0	8
AS-300	300	3.0	10	1.0	8
AS-400	400	4.0	10	1.0	8
AS-500	500	5.0	10	1.0	8
AS-600	600	6.0	10	1.0	8
AS-700	700	7.0	10	1.0	8
AS-800	800	8.0	10	1.0	8
AS-900	900	9.0	10	1.0	8
AS-1000	1000	10.0	10	1.0	8

RESULTS SHOWS THAT THE AMOUNT OF AMMONIA IN THE EFFLUENT IS LOW.

RONSER
Ronsar Bio-Tech Berhad (public)
1000, Malacca Street, Jalan 7/23 St. Bandar Damansara Perdana, 47820-Petaling Jaya, Selangor, Malaysia.
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