



International Society of Bionic Engineering

DITF

DEUTSCHE INSTITUTE FÜR
TEXTIL+FASERFORSCHUNG

ISBE International Society of Bionic Engineering
2017 International Workshop on Bionic Engineering (IWBE2017)
“Energy and Bionics”

June 13-14, 2017, at DITF Denkendorf, Germany

Topics:

- Energy harvesting and storage
- Surface phenomena for energy saving

DAY 1 Energy harvesting and storage

Time	Title	Authors	Institute/Company	Country
13:00-13:20	Welcome words and presentation of DITF Denkendorf	Thomas Stegmaier	DITF Denkendorf	
13:20-13:30	Opening address	Julian Vincent	President of ISBE	UK
13:30-13:55	Smart Interfacial Materials from Super-Wettability to Binary Cooperative Complementary Systems	Lei Jiang	Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing; China School of Chemistry and Environment, Beihang University, Beijing	China
13:55-14:20	Bio-inspired wind turbine blade designs enable robust harvesting of wing energy	Hao Liu	Graduate School of Engineering, Chiba University	Japan
14:20-14:45	Electroactive polymer energy harvesting without hard electronics	Iain Anderson, Patrin Illenberger	Biomimetics Laboratory, University of Auckland; Department of Engineering Science, University of Auckland	New Zealand
14:45-15:10	Solar thermal energy harvesting	Stegmaier, Arnim, Sarsour, Scherrieble	DITF Denkendorf	Germany
15:10-15:30	Coffee			
15:30-15:55	Application of Bionics in the Design of Water Hydraulic Valve	He Xu, Haihang Wang, Chunwei Zhang, Baochao Zong, Chanil Pak, Mingyu Hu	College of Mechanical and Electrical Engineering, Harbin Engineering University	China
15:55-16:20	Investigation of leaf shape and edge design for faster evaporation in biomimetic heat dissipation systems	Petra Gruber, Ariana Rupp	University of Akron, Biomimicry Research and Innovation Center BRIC	USA
16:20-16:45	Barnacle cement proteins: Study of mechanism for biofouling and underwater adhesive	Xinkang Zhang, Zonghuang Ye, Biru Hu	College of Science, National University of Defense Technology, Changsha	China
16:45-17:10	Exploiting frictional anisotropy from a passive scale-like material for energy-efficient locomotion of a bio-inspired walking robot	Poramate Manoonpong	The Maersk Mc-Kinney Moller Institute, University of Southern Denmark	Denmark
17:10-17:35	A Bio-Inspired Vibration Energy Harvester for Downhole Electrical Tools	Qinghai Yang	Research Institute of Petroleum Exploration and Development, PetroChina, Beijing	China
17:35-18:00	Nature inspired liquid migration for innovative heat pipe technology and applications to thermal management	Yuying Yan	Faculty of Engineering, University of Nottingham	Great Britain
18:00	End of lectures day 1; transportation to the hotels is arranged for you			
20:00	Conference dinner in the Weinkeller Einhorn, Heugasse 17, 73728 Esslingen, Transportation from the hotels to the Weinkeller Einhorn and back is arranged for you (detailed plan is distributed on the conference)			

DAY 2 Surface phenomena for energy saving

Time	Title	Authors	Institute/Company	Country
8:45-9:15	Biological surfaces and Biometric applications: from Lotus- to the Salvinia-Effect for drag reduction and other biomimetic innovations	M. Mail ^{1,2} , W. Barthlott ¹	Nees Institute for Biodiversity of Plants, University of Bonn; Institute of Crop Science and Resource Conservation (INRES), Bonn	Germany
9:15-9:40	Bio-inspired graphene-enhanced thermally conductive elastic silicone rubber as drag reduction material	Limei Tian ¹ , E Jin ¹ , Haoran Mei ¹ , Qingpeng Ke ¹ , Ziyuan Li ¹ , Guoru Zhao ²	¹ Key Laboratory of Bionic Engineering, Jilin University, Ministry of Education, Changchun; ² Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen	China
9:40-10:05	Stimuli-responsive secretion for controlling surface and optical properties	Huaixia Zhao ^{1,2} , Lizbeth Ofelia Prieto-López ² , Jiayi Cui ^{1,2}	¹ Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China, Chengdu; ² INM-Leibniz Institute for New Materials, Saarbrücken	China, Germany
10:05-10:50	Coffee in the polar bear pavilion			
10:50-11:15	A smart switchable bioinspired material for oil-water separation	Yan Liu, Kaiteng Zhang, Bing Zhan, Yan Song, Wei Zhang	Key Laboratory of Bionic Engineering, Jilin University, Changchun	China
11:15-11:40	Deterministic Surfaces for Hostile Triboc-conditions: from Bio-Inspiration to Functional Design	Hisham A Abdel-Aal	Department of Mechanical Engineering and Mechanics, Drexel University, Philadelphia	USA
11:40-12:10	Bio-inspired surface for unidirectional liquid spreading	Huawei Chen ¹ , Pengfei Zhang ¹ , Liwen Zhang ¹ , Deyuan Zhang ¹ , Lei Jiang ²	¹ School of Mechanical Engineering and Automation, Beihang University; ² Technical Institute of Physics and Chemistry, Chinese Academy of Sciences	China
12:10-12:35	Study of a bionic lubrication design in reducing friction between rod and packing	Qinghai Yang	Research Institute of Petroleum Exploration and Development, PetroChina, Beijing	China
12:35-13:35	Lunch			
13:35-14:05	Water harvesting on surfaces with gradient micro- and nanostructures	Yongmei Zheng	Beihang University	China
14:05-14:30	Superhydrophobic Sand: A Hope for Desert Water Storage and Transportation Project	Zhiguang Guo	State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou	China
14:30-14:55	Spontaneous, directional liquid transport on natural and artificial surfaces	Zuankai Wang	Department of Mechanical and Biomedical Engineering, City University of Hong Kong	Hong Kong
14:55-15:20	Capillary rising and liquid transport properties within 3D porous structure	Hao Bai	State Key Laboratory of Chemical Engineering, College of Chemical and Biological Engineering, Zhejiang University, Hangzhou	China
15:20-15:35	Closing words	Thomas Stegmaier	DITF Denkendorf	
15:35	End of Conference			

Locations and transportation:

1. Conference site DITF Denkendorf (please organize your arrival to DITF on the first day of the Conference by yourself)

Address:

Körschtalstr. 26

73770 Denkendorf, Germany

Transportation to DITF:

- Arrival by plane: Airport Stuttgart, 12 km by Taxi to DITF
- Arrival by train: from Stuttgart main station by metro ("S-Bahn" line S1) or by „Regionalbahn (RB)“, line R1 or R8 to Plochingen; from Plochingen train station by Taxi to DITF 10 km



2. Transportation from the DITF to the hotel that you booked and from there to the Conference Dinner and back to the hotel, as well as the transport from the hotel to the DITF on the second day is organized for you by the organizer of the Conference (detailed plan is distributed at the Conference)

Location of Conference Dinner "Weinkeller Einhorn":

Address:

Heugasse 17

73728 Esslingen



3. Departure after end of Conference: Taxis can be arranged for you on your own clearing

Detailed map of hotels and location of conference dinner in Esslingen:

