BDMC 2019
INTERNATIONAL CONFERENCE

The 2nd International Conference on Biomaterials, Bio-Design and Manufacturing

in conjuntion with

H2020 BAMOS Project 2019 Meeting

Program

SEPTEMBER 04-06, 2019 | TIANJIN, CHINA

Hosted by
School of Mechanical Engineering
Tianjin University

• Organizers •

浙江大学 Zhejiang University

天津大学 Tianjin University

The journal of Bio-Design and Manufacturing

• Co-organizers •

Bamos

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Key Laboratory of Mechanism Theory and Equipment Design (Tianjin university),Ministry of Education

SKL 流体动力与机电系统国家重点实验室
State Key Laboratory of Fluid Power & Mechatronic Systems

Welcome message

On behalf of the scientific committee, we courteously welcome you to participate in the 2nd International Conference on Biomaterials, Bio-Design and Manufacturing (BDMC 2019), which will be held on September 4-6, 2019 in Tianjin, China. The objective of the conference is to promote academic communication among researchers both from universities and industries in the field of biomanufacturing.

The International Conference on Biomaterials, Bio-Design and Manufacturing (BDMC) is a serial conference. The first BDMC conference was held in Hangzhou in 2018, organized by Zhejiang University and the University of Oxford. The second conference (BDMC 2019) will be organized by Zhejiang University and Tianjin University, and will be supported by the journal of Bio-Design and Manufacturing.

The conference theme of BDMC 2019 is: Intelligence, Interdiscipline, Innovation, and it will include plenary talks, keynotes, and technical sessions devoted but not limited to the following topics:

- Novel bio-manufacturing systems and technologies
- Novel additive manufacturing mechatronic systems
- Medical diagnosis and surgical robotics
- Engineering tissues and organs
- Design and fabrication of biological systems
- Understanding and manipulation of biological systems
- Production and delivery of biological products
- Novel biomaterials and formulation of novel “bioinks”

Zhejiang University is one of the top five universities in China. The joint research laboratory on 3D bioprinting between Zhejiang University and the University of Oxford is devoted to exploring the frontiers in the field of biomanufacturing. Tianjin University is historically the first modern university in China. Currently it is one of the most prestigious research-oriented universities in China. The research group on medical robotics at Tianjin University has been focusing on development of surgical robotics and instruments for about two decades. Biologically inspired design and manufacturing is one of their current research interests.

Tianjin is one of China's four major municipalities. It is also one of the largest industrial and harbor cities in China and is known as "the Diamond of the Bohai Gulf".

Welcome to Tianjin, welcome to BDMC 2019!

Huayong Yang
Chair, BDMC 2019
Zhejiang University, CHN

Zhanfeng Cui
Co-chair, BDMC 2019
University of Oxford, UK

Peihua Gu
Co-chair, BDMC 2019
Tianjin University, CHN

Conference Chairs

Huayong Yang	Zhejiang University	CHN
Zhanfeng Cui	University of Oxford	UK
Peihua Gu	Tianjin University	CHN

Scientific Committee

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Co-Chair: Professor Zhanfeng Cui, University of Oxford, UK

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Scientific Committee

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Zhongze Gu	Southeast University	CHN

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Co-Chair: Professor Luming Li, Tsinghua University, China

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Luming Li	Tsinghua University	CHN
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Co-Chair: Dr. Bin Zhang, Zhejiang University, China

General Secretariat:Dr. Kaifeng Wang, Tianjin University, China

Dr. Liang Ma, Zhejiang University, China

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Liu Ma
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General Information

Conference Venue
Crowne Plaza Tianjin Jinnan
天津京基皇冠假日酒店
Address: Lingyu Road, Balitai Area, Jinnan District, Tianjin, China (Beside Kingkey Golf Course)
中国天津市津南区八里台镇嶺域路（京基高尔夫旁）
Website: https://www.ihg.com/crowneplaza/hotels/gb/en/reservation

Accommodation
Option 1: Crowne Plaza Tianjin Jinnan
天津京基皇冠假日酒店
Please call 86-22-2872 8888 for hotel reservation.

Option 2: Balitai Biguiyuan Hotel (Country Garden Phoenix Hotel)
碧桂园凤凰酒店
Address: Baer Road, Balitai Area, Jinnan District, Tianjin, China
八里台镇八二路逸彩庭苑 1 号楼
It is about 10-minute drive from the venue. Please call 86-18202230012 for hotel reservation.
Website: http://phoenixhoteltianjin.com/

Option 3: Jinwei Grand Hotel
津卫大酒店
Address: 66 Dongting Road, Hexi District, Tianjin, China
河西区洞庭路 66 号
It is about 20-minute drive from the venue.

Transportation
During the conference (September 4-6), buses will be provided for transportation between Balitai Biguiyuan Hotel/ Jinwei Grand Hotel and the conference venue.

Registration
Conference on-site registration will be located at the lobby of Crowne Plaza Tianjin Jinnan.
Registration will be available during the conference:
8:00 – 18:00, September 4-5, 2019
8:00 – 12:00, September 6, 2019

Schedule

Wednesday, September 4, 2019 Crowne Plaza Tianjin Jinnan	
08:00-18:00	**Registration** Lobby
15:00-18:00	**Tianjin University History Museum Tour** (Bus will be provided)
19:00-21:00	**Welcome Reception** KUNLUN

Thursday, September 5, 2019 Crowne Plaza Tianjin Jinnan				
08:45-09:00	**Opening Ceremony** KUNLUN			
09:00-09:40	**Plenary Talk 1: Prof. Zhanfeng Cui** KUNLUN			
09:40-10:20	**Plenary Talk 2: Prof. Kevin Cleary** KUNLUN			
10:20-10:50	**Tea Break**			
10:50-11:30	**Plenary Talk 3: Prof. Huayong Yang** KUNLUN			
11:30-13:30	**Lunch (Buffet)** FOCUS RESTAURANT (B1)			**BDM Meeting** YULONG (12:00-13:30)
13:30-15:30	***S1*** **Medical Devices 1** TANGGULA III	***S2*** **BAMOS** CHANGBAI	***S3*** **Bio-materials 1** TANGGULA I	***S4*** **NSFC** EMEI
15:30-15:50	**Tea Break**			
15:50-17:30	***S5*** **Medical Devices 2** TANGGULA III	***S6*** **Tissue Engineering** CHANGBAI	***S7*** **Bio-materials 2** TANGGULA I	***S4 (cont.)*** **NSFC** EMEI
18:00-20:00	**Banquet** KUNLUN			

Schedule (cont.)

Friday, September 6, 2019 Crowne Plaza Tianjin Jinnan				
09:00-09:40	**Plenary Talk 4: Prof. Rui L. Reis** KUNLUN			
09:40-10:20	**Plenary Talk 5: Prof. Paolo Dario** KUNLUN			
10:20-10:50	**Tea Break**			
10:50-11:30	**Plenary Talk 6: Prof. Yong Huang** KUNLUN			***S4 (cont.)*** **NSFC** EMEI
11:30-13:30	**Lunch (Buffet)** FOCUS RESTAURANT (B1)			
13:30-15:30	***S8*** **Bio-Manufacturing** TANGGULA III	***S9*** **Cell printing** CHANGBAI	***S10*** **Bionics/ Bio-design** EMEI	***S11*** **Tissue/organ printing 1** TANGGULA I
15:30-15:50	**Tea Break**			
15:50-17:00	***S8 (cont.)*** **Bio-Manufacturing** TANGGULA III	***S9 (cont.)*** **Cell printing** CHANGBAI	***S10 (cont.)*** **Bionics/ Bio-design** EMEI	***S12*** **Tissue/organ printing 2** TANGGULA I
17:00-17:30	**Closing Ceremony** KUNLUN			
17:30-20:00	**Dinner (Buffet)** TANGGULA II			

Lab Tour on Sept. 5/Sept. 6 afternoon

14:00	Departure from the conference venue
14:30 – 16:00	Lab Tour, Tianjin University Peiyang Park Campus
16:30	Return to the conference venue

Wednesday, Sept. 4, 2019

8:00 – 18:00

Registration

Location: Conference Venue Lobby

15:00 – 18:00

Tianjin University History Museum Tour

(Bus will be provided)

19:00 – 21:00

Welcome Reception

Location: KUNLUN, 1st floor

Thursday, Sept. 5, 2019

8:45 – 9:00

Opening Ceremony

Welcome: President, Dr. Donghan Jin / Chairman of University Council, Dr. Jiajun Li, Tianjin University, China

Photographing

Location: KUNLUN, 1st Floor

9:00 – 11:30

Plenary Talks

Chair: Prof. Peihua Gu, Tianjin University, China

Location: KUNLUN, 1st Floor

9:00 – 9:40

Plenary Talk 1

Bio-manufacture of personalised therapeutics: centralised vs decentralised vs distributed

Prof. Zhanfeng Cui, University of Oxford, UK

9:40 – 10:20

Plenary Talk 2

Surgical robotics and image-guided navigation in the operating room of the future

Prof. Kevin Cleary, Children's National Health System, Washington, DC, USA

10:20 – 10:50 **Tea Break**

10:50 – 11:30

Plenary Talk 3

Bio-design and manufacturing of functional tissues and organs

Prof. Huayong Yang, Zhejiang University, China

11:30 – 13:30 **Lunch (Buffet)**

Location: FOCUS Restaurant (B1)

12:00 – 13:30

Extended Meeting of BDM Editorial Committee

Location: YULONG, 1st Floor

13:30 – 15:30

S1: Medical Devices 1

Session Chairs: Prof. Guibin Bian; Dr. Jianmin Li

Location: TANGGULA III, 1st Floor

S1-1. Keynote Speech 1

Technology advances in deep brain stimulation

Luming Li

Tsinghua University, China

S1-2. Continuum robot with motion planning method for endoscopic neurosurgery

Yuanqian Gao, Jianmin Li

Brigham and Women's Hospital Department of Radiology, USA

S1-3. Multi-objective optimal path planning for flexible needle puncture

Lixing Jin, Xingguang Duan, Qingxin Shi, Junjie Dong

Beijing Institute of Technology, China

S1-4. An extremely fast and precise convolutional neural network for recognition and localization of cataract surgical tools

Dongqing Zang, Guibin Bian, Yunlai Wang, Zhen Li

Chinese Academy of Sciences, China

S1-5. Flexible human-robot collaboration approaches for cataract capsulorhexis based on integrated virtual fixtures

Yaoguang Su, Guibin Bian, Zhen Li, Weipeng Liu

Chinese Academy of Sciences, China

S1-6. Robot-assisted flexible ureteroscopy

Jianchang Zhao, Shuxin Wang, Zhenxuan Hu, Jinhua Li

Tianjin University, China

S1-7. Dimension reduced instantaneous inverse kinematics around configuration variable limits for continuum manipulators

Zhonghao Wu, Kai Xu

Shanghai Jiao Tong University, China

S2: BAMOS Symposium

Session Chairs: Prof. Mario Domingo Monzón Verona; Dr. Joaquim Miguel Oliveira

Location: CHANGBAI, 1st Floor

S2-1. Keynote Speech 1

The effect of the manufacturing process on the properties of freeze-dried cellulose reinforced alginate-based scaffolds

Mario Monzón

Universidad de Las Palmas de Gran, Canaria

S2-2. Keynote Speech 2

Advanced biomaterials for am and imaging

Miguel Oliveira

Universidade do Minho, Portugal

S2-3. Research on 3d printing process of cortical-like tissue structure

Sen Wang

Xi'an Jiaotong University, China

S2-4. 3D fabrication of short-stem porous hip implant preventing stress shielding & promoting osseointegration

Seyed Ataollah Naghavi

University College London, UK

S3: Bio-materials 1

Session Chairs: Prof. Wenguang Liu; Prof. Xuetao Shi

Location: TANGGULA I, 1st floor

S3-1. Keynote Speech 1

Bioelastomers, 3d printing and their diverse applications

Zhengwei You

Donghua University, China

S3-2. Keynote Speech 2

Pnaga-based high-strength hydrogel bioinks

Wenguang Liu

Tianjin University, China

S3-3. Keynote Speech 3

A rapidly self-healing supramolecular hydrogel with excellent mechanical properties and biocompatibility for soft tissue repair and reconstruction engineering

Xuetao Shi

South China University of Technology, China

S3-4. Design and fabrication of biodegradable external airway splints with native-like mechanical properties

Zijie Meng, Jiankang He, Wenhao Liu, Jinbo Zhao, Lei Wang, Dichen Li

Xi'an Jiaotong University, China

S3-5. Strong anisotropic wet attachment surface bioinspired from the toe pad of tree frog

Liwen Zhang, Yurun Guo, Yan Wang, Huawei Chen, Deyuan Zhang

Beihang University, China

S3-6. Osteochondral regeneration with 3d-printed biodegradable supramolecular polymer strengthened-gelatin hydrogel scaffolds

Ziyang Xu, Fei Gao, Wenguang Liu

Tianjin University, China

S3-7. Nepenthes inspired ultra-slippery textured surface with wettability gradients for anti-sticking of soft tissue

Guang Liu, Liwen Zhang, Huawei Chen, Deyuan Zhang

Beihang University, China

S4: NSFC Symposium

Location: EMEI, 1st Floor

15:30 – 15:50 **Tea Break**

15:50 – 17:30

S4 (cont.): NSFC Symposium

Location: EMEI, 1st Floor

S5: Medical Devices 2

Session Chairs: Prof. Shuqi Wang; Prof. Chaoyang Shi

Location: TANGGULA III, 1st Floor

S5-1. Voice control of a manipulator and its optimal pivot selection

Mengjun Fang, Peng Li, Le Wei

Harbin Institute of Technology (Shenzhen), China

S5-2. A fusion method of ultrasound image with stereoscopic laparoscopic video

Zhiyu Fang, Jianmin Li, Zeyang Xia, Jing Xiong

Chinese Academy of Sciences, China

S5-3. Novel parallelogram set-membership estimation dynamic navigation method for osteotomy surgical robot

Danyang Qu, Guoli Song, Yiwen Zhao, Xingang Zhao, Jianda Han, Yang Luo

Chinese Academy of Sciences, China

S5-4. The design and analysis of a deployable mechanism for transoral endoscopic surgery

Yuyang Sun, Hongbin Liu, Shuxin Wang, Junghwan Back, Siyang Zuo, Julius Bernth, Guokai Zhan, Jianmin Li

Tianjin University, China

S5-5. A robotic assistant for laparoscopic hysterectomy surgery

Peng Li, Hiuman Yip, Navarro-Alarcon David, Zerui Wang, Fangxun Zhong, Yunhui Liu

Harbin Institute of Technology (Shenzhen), China

S5-6. A novel asymmetrical continuum manipulator for transoral surgery

Rui Liu, Zijiang Zhang, Shuxin Wang, Chaoyang Shi

Tianjin University, China

S5-7. Aural servo of surgical milling robot

Guangming Xia, Yu Dai, Jianxun Zhang, Bin Jia

Nankai University, China

S5-8. Model-less shape estimation for cable-driven flexible robots based on neural network

Xiaoyang Li, Jianchang Zhao, Guokai Zhang, Chaoyang Shi

Tianjin University, China

S5-9. Computer vision-based pose estimating method for flexible ureteroscope

Zengyu Zhang, Jianchang Zhao, He Su, Shuxin Wang

Tianjin University, China

S6: Tissue Engineering

Session Chairs: Prof. Jinwu Wang; Dr. Shiyu Liu

Location: CHANGBAI, 1st Floor

S6-1. Keynote Speech 1

Progress and clinical translation of 3d bioprinting technology in orthopedics surgery

Jinwu Wang

Shanghai Ninth People's Hospital, Shanghai Jiao Tong University, China

S6-2. Keynote Speech 2

Manipulation of endogenous exosome biodistribution via vesicle shuttles for autogenous therapeutics

Shiyu Liu

Tissue Engineering Center, The Fourth Military Medical University, China

S6-3. Keynote Speech 3

The application of tissue engineering in optic nerve repair and regeneration

Kaihui Nan

Wenzhou Medical University, China

S6-4. Keynote Speech 4

3D-printing of functional nerve conduits with drug release

Maling Gou

Sichuan University, China

S6-5. On the fe modelling of short-stem porous hip implant design for preventing stress shielding & promoting osseointegration

Seyed Ataollah Naghavi, Jia Hua, Mehran Moazen, Steve Taylor, Chaozong Liu

University College London, UK

S6-6. An image-guided intrascaffold cell assembly technique for accurate printing of heterogeneous tissue constructs

Kevin F. Firouzian, Ting Zhang, Hefeng Zhang, Yu Song, Xiaolei Su, Feng Lin

Tsinghua University, China

S7: Bio-materials 2

Session Chairs: Dr. Changchun Zhou; Dr. Shaohua Ma

Location: TANGGULA I, 1st Floor

S7-1. Keynote Speech 1

Microfluidics synthesis of injectable angiogenic microgels

Shaohua Ma

Tsinghua University, China

S7-2. Keynote Speech 2

3D printing of CaP bioceramic with tailored biodegradation rate for bone tissue reconstruction

Changchun Zhou

Sichuan University, China

S7-3. Hybrid pcl/hydrogel scaffold fabrication and in-process plasma treatment using pabs system

Fengyuan Liu

University of Manchester, UK

S7-4. Superhydrophobic-self-cleaning bio-inspired polydimethylsiloxane micro-square-pillared surface via FEP coating modification

Xiaoming Feng, Zhiwu Han, ZhibinJiao, Shichao Niu

Jiangsu University of Science and Technology, China

S7-5. Bionic-capillaries for research on deformability and recoverability of red blood cells

Yuanyuan Chen, Huawei Chen

Beihang University, China

S7-6. Design and construction of drug-loading biomass and natural materials

Jing Liu, Jiandu Lei

Beijing Forestry University, China

18:00 – 20:00

Banquet

Location: KUNLUN, 1st Floor

Friday, September 6, 2019

9:00 – 11:30

Plenary Talks

Chair: Prof. Zhanfeng Cui, University of Oxford, UK

Location: KUNLUN, 1st Floor

9:00 – 9:40

Plenary Talk 4

Innovative biomaterials and processing routes for the engineering of different tissues

Prof. Rui L. Reis, 3B's Research Group, University of Minho, Guimaraes, Portugal

9:40 – 10:20

Plenary Talk 5

Frontiers of bionics science and engineering

Prof. Paolo Dario, The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy

10:20 – 10:50 **Tea Break**

10:50 – 11:30

Plenary Talk 6

Bioprinting: Implementation, process dynamics, and process-induced cell injury

Prof. Yong Huang, University of Florida, USA

10:40 – 12:00

S4 (cont.): NSFC Symposium

Location: EMEI, 1st Floor

11:30 – 13:30

Lunch (Buffet)

Location: FOCUS Restaurant (B1)

13:30 – 15:30

S8: Bio-manufacturing

Session Chairs: Prof. Jiankang He; Prof. Yanen Wang

Location: TANGGULA III, 1st Floor

S8-1. Keynote Speech 1

Multiscale additive manufacturing for biomedical applications

Jiankang He

Xi'an Jiaotong University, China

S8-2. Keynote Speech 2

Study on the mechanism of a binder droplet impacting on surface of hydroxyapatite microsphere for 3dp fabrication bone scaffolds

Yanen Wang

Northwestern Polytechnical University, China

S8-3. Keynote Speech 3

Fabrication and assembly of nanostructured materials for biomedical applications

Xiaobin Xu

Tongji University, China

S8-4. Keynote Speech 4

Organs-on-chips based on multi-scale two-photon polymerization

Zaozao Chen

Southeast University, China

S8-5. Mechanism of chip formation in orthogonal cutting of cortical bone

Wei Bai , Liming Shu, Ronglei Sun, Jianfeng Xu, Naohiko Sugita

Huazhong University of Science and Technology, China

S8-6. Mechanism of material removal in orthogonal cutting of cortical bone

Wei Bai, Liming Shu, Ronglei Sun, Jianfeng Xu, Naohiko Sugita

Huazhong University, China

S8-7. Polyimid mechanical and biological performance manufactured by injection moulding for bone plate and screw design

Ziyu Liu, Jianshu Yu, Tangwei Mi, Shen- - Mao Chen, Yongwei Pan, Chaozong Liu, Zhongfu Zhou

University College London, UK

S9: Cell printing

Session Chairs: Prof. Feng Lin; Prof. Tao Xu

Location: CHANGBAI, 1st Floor

S9-1. Keynote Speech 1

3D bioprinting for personalized tumor model and tissue regeneration

Tao Xu

Tsinghua University, China

S9-2. Keynote Speech 2

Bio-micro-nano composite 3D printing and the process control

Yuanyuan Liu

Shanghai University, China

S9-3. Keynote Speech 3

Biomanufacturing of complex tissue with 3D printing technologies

Ting Zhang

Tsinghua University, China

S9-4. 3D bio-printing technology

Wei Li

Southwest Jiaotong University

S10: Bionics/Bio-design

Session Chairs: Prof. Huawei Chen; Prof. Zhiwu Han

Location: EMEI, 1st Floor

S10-1. Keynote Speech 1

Scorpion-inspired ultrasensitive mechanosensors toward comprehensive high-performance

Zhiwu Han

Jilin University, China

S10-2. Keynote Speech 2

Biodesign and biofabrication for liver diseases

Shuqi Wang

Zhejiang University, China

S10-3. Bionic design and evaluation of PEEK costal cartilage prosthesis fabricated by 3D printing

Chenguang Zhang, Jianfeng Kang, Ling Wang, Dichen Li

Xi'an Jiaotong University,China

S10-4. Wearable flexible nano-transfection device for on-skin gene editing with CRISPR-Cas9

ZaizaiDong, YongcunHao, Chandani Chitrakar, Honglong Chang, Lingqian Chang

Beihang University

S10-5. Hydrogel microactuators by two-photon polymerization

Haibo Ding, Keliang Liu, Zhongze Gu

Southeast University, China

S10-6. Prospective and development of bionic mechanical interfaces

Jian Zhang, Huaxian Wei, Bo Hong, Alessandro Simone, Qingjin Peng, Peihua Gu

Shantou University, China

S10-7. Bio-inspired microfluidic sweat sensor

Zhenwei Zhang, Deyuan Zhang, Huawei Chen

Beihang University, China

S11 : Tissue/organ printing 1

Session Chairs: Prof. Yong He; Dr. Bin Zhang

Location: TANGGULA I, 1st Floor

S11-1. Keynote Speech 1

Design and manufacturing of liver tissue model and tumor microenvironment with 3D bioprinting

Liang Ma

Zhejiang University, China

S11-2. Keynote Speech 2

Novel digital light processing (dlp) bioprinting and its application in liver function recovery

Jun Yin

Zhejiang University, China

S11-3. 3D bioprinting based multilayer hydrogel structure for accelerating skin epidermis formation

Yichen Luo, Bin Zhang, Liang Ma, Huayong Yang

Zhejiang University, China

S11-4. Study on the technology of 3D extrusion printing multiscale hydrogel lens and the optical properties

Jintao Li, Qian Xue, Qi Li, Liang Ma, Bin Zhang

Zhejiang University, China

S11-5. 3D bioprinted intracorneal lenses with Gelma

Qian Xue, Bin Zhang, Liang Ma, Jintao Li, Qi Li

Zhejiang University, China

S11-6. A bilayered Gelma/Pegda-based nerve guidance with seeded BMSC for peripheral nerve regeneration

Jingyi Liu, Jun Yin

Zhejiang University, China

S11-7. Micropatterned hydrogel cardiac patch for guiding the alignment of cardiomyocytes

Lei Gao, Xiaohong Yin, Liang Ma, Bin Zhang, Huayong Yang

Zhejiang University, Ching

15:30 – 15:50 **Tea Break**

15:50 – 17:00

S8 (cont.): Bio-manufacturing

Session Chair: Prof. Jiankang He; Prof. Yanen Wang

Location: TANGGULA III, 1st Floor

S8-8. A multiplexed intracellular probing (IP) nano-chip for interrogation of myo-fibroblasts and cardiomyocytes gene in cardiac fibrosis

Z. Dong, C. Chitrakar, L. Chang

Beihang University, China

S8-9. Characterization analysis of reaming medullary cavity in hip arthroplasty: experimental investigation using porcine femur

Zhihua Liu, Chengyong Wang, Zhihua Chen, Jianbo Sui, Hang Chen

Guangdong University, China

S8-10. Research of dissolving microneedles based on antibacterial property and cytotoxicity

Xin Yi, Chengyong Wang, Xiao Yu， Zhishan Yuan

Guangdong University, China

S8-11. Development and application of physical vapor deposited coatings for medical devices

Geyao Lan, Yang Deng, Wanglin Chen, Chengyong Wang

Guangdong University, China

S9 (cont.): Cell printing

Session Chairs: Prof. Feng Lin; Prof. Shuo Bai

Location: CHANGBAI, 1st Floor

S10 (cont.): Bionics/Bio-design

Session Chairs: Prof. Huawei Chen; Prof. Zhiwu Han

Location: EMEI, 1st Floor

S10-8. Biomimetic multi-scale structured materials with antireflection and antifogging properties inspired from butterfly wings

Bo Li, Zhengzhi Mu, Ze Wang, Xiaoming Feng, Zhibin Jiao, Junqiu Zhang, Shichao Niu, Zhiwu Han, Luquan Ren

Jilin University, China

S10-9. Implant topological structure design and its effects on antibacterial behavior and biocompatibility

Ziying Guo, Chengyong Wang, Chezhi Du

Guangdong University of Technology, China

S10-10. Morphological and micromechanical investigation on fringe bristles of thrips

Peng Zhao, Zihao Dong, Deyuan Zhang, Yonggang Jiang

Beihang University, China

S12: Tissue/organ printing 2

Session Chair: Dr. Jun Yin; Dr. Liang Ma

Location: TANGGULA I, 1st Floor

S12-1. The model of liver acinar microfluidics chip with three-vascular structure

Yutong Wu, Yuting Li, Liang Ma, Bin Zhang

Zhejiang University, China

S12-2. Biohybrid actuators based on cultured cardiomyocytes-powered micro grooved thin films

Xiaohong Yin, Lei Gao, Bin Zhang, Liang Ma

Zhejiang University, China

S12-3. 3D printing of complex GeIMA-based scaffolds with nanoclay

Gao Qing

Zhejiang University, China

S12-4. Bioprinting of cell-laden microfiber: can it become a standrad product

Shao Lei

Zhejiang University, China

S12-5. Biomimetic design of titanium implants porous microstructures and mechanical properties via 3d printing manufacturing

Xuan Pei, Changchun Zhou, Yujiang Fan, Xingdong Zhang

Sichuan University, China

17:00 – 17:30

Closing Ceremony

Hosted by Prof. Peihua Gu, Tianjin University, China

Location: KUNLUN, 1st Floor

17:30 – 20:00 **Dinner (Buffet)**

Location: TANGGULA II, 1st Floor

Plenary Speakers

Professor Zhanfeng Cui

University of Oxford, UK

Biography

Prof Cui is the Donald Pollock Professor of Chemical Engineering, University of Oxford since the Chair was established in 2000. He is the Founding Director of Oxford Centre for Tissue Engineering and Bioprocessing, and Founding Director of the Oxford Suzhou Centre for Advanced Research (OSCAR). He was educated in China (BSc, Inner Mongolia Polytechnic University, MSc and PhD from Dalian University of Technology). After a postdoc in Strathclyde University, he became a lecturer in Edinburgh University in 1991, moved to Oxford in 1994 as a University Lecturer and was elected to the first Chemical Engineering Chair in 2000. He is a Fellow of the Insitution of Chemical Engineers (FIChemE) and a Fellow of American Institute of Medical and Biological Engineering (FAIMBE). He was elected to a Fellow of the Royal Academy of Engineering (FREng) in 2013.

His main research interest is enabling technologies for regenerative medicine including bioreactors, monitoring, three dimensional culture, cryopreservation and scale-up. His centre conducts translational research targeting on cancer, diabetes, neural degeneration and musculoskeletal conditions.

Professor Kevin Cleary

Children's National Health System, Washington, DC, USA

Biography

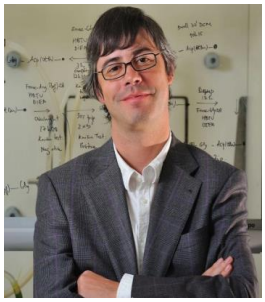
Kevin Cleary PhD is the Scientific Lead of the Sheikh Zayed Institute for Pediatric Surgical Innovation in Washington DC. He leads a team of engineers and scientists working with their clinical colleagues to develop biomedical devices for pediatric care. He is internationally recognized for his research in medical robotics and image-guided navigation. Previously he was at Georgetown University Medical Center in the Imaging Science and Information Systems Center, where he developed systems for minimally invasive procedures. He received his BS and MS degrees from Duke University and a PhD from the University of Texas at Austin, all in mechanical engineering. He was also an NSF-sponsored postdoctoral scientist in Japan.

Professor Huayong Yang

Zhejiang University, China

Biography

Huayong Yang received bachelor degree from Huazhong University of Science and Technology in 1982 and PhD degree from University of Bath in 1988. He is now the head of School of Mechanical Engineering, Zhejiang University, the director of the State Key Laboratory of Fluid Power and Mechatronic Systems. His research interests are in motion control and energy saving of mechatronic systems, development of fluid power component and system, integration of electro-hydraulic system and engineering applications, 3D bioprinting systems and biofabrication applications. He has received a number of honors and recognitions including been awarded the National Natural Science Foundation for Distinguished Young Scholars in 2004, selected as the Yangtze river scholars Distinguished Professor of MOE in 2005, the Chief Scientist of a project founded by the National Basic Research Program of the Ministry of Science and Technology(MOST) twice in 2007 and 2012, elected as a member of the Chinese Academy of Engineering in 2013, a member of the China People's Political Consultative Conference National Committee in 2018, won the National Innovation Award in 2017. He has been a fellow member of the Chinese Mechanical Engineering Society, and a member of the Academic and Advisory Committees of 12 State Key Laboratories. He severs as the chief editor of the journal BioDesign and Manufacturing and Journal of Zhejiang University, Science A.



Professor Rui L. Reis

3B's Research Group, University of Minho, Guimaraes, Portugal

Biography

Professor Rui L. Reis, PhD, DSc, Hon. Causa MD, Hon Causa PhD, FBSE, FTERM, member of NAE, FAIMBE, FEAMBES, was born in 1967 in Porto, Portugal. He is the Vice-President for Research and Innovation of University of Minho, Portugal, Director of the 3B's Research Group - member of the I3Bs – Institute for Biomaterials, Biodegradables and Biomimetics, and Director of the ICVS/3B´s Associate Laboratory, both of UMinho. He is also the CEO of the European Institute of Excellence on Tissue Engineering and Regenerative Medicine, the Coordinator of the Discoveries Centre for Regenerative and Precision Medicine, the Global Past-President of the Tissue Engineering and Regenerative Medicine International Society (TERMIS) and the Editor-in-chief of the Journal of Tissue Engineering and Regenerative Medicine. He is a recognized World expert in the TERM and biomaterials fields, that has edited several books and has more 1225 published works listed on ISI Web of Knowledge with an h index of 86 (1115 works and h=92 in Scopus and 1923 and h=110 in Google Scholar), being also an inventor of around 70 patents. Based on those he co-funded several companies that raised important private investments. According to Google Scholar his work has been cited more than 50000 times. He has been awarded many important international prizes, including among several others different innovation awards, the Jean Leray and George Winter Awards (ESB), the Clemson Award (SFB), the TERMIS-EU contributions to the literature Award and the TERMIS-EU Career Achievement Award, and recently (2018) the UNESCO- International Life Sciences Award and the IET A. F. Harvey Engineering Research Prize. He is the PI of projects with a budget totalizing more than 50 million Euros.

Professor Paolo Dario

The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy

Biography

Paolo Dario is Professor of Biomedical Robotics at the Scuola Superiore Sant'Anna, Pisa, Italy. He received his Dr Eng Degree in Mechanical Engineering from the University of Pisa, and Honorary Dr Eng Degree in Biomedical Engineering from the Campus Biomedico University in Rome, and has been and is visiting researcher, professor and fellow at various universities and scientific institutions in Europe, USA, the Middle East and Asia. His current research interests are in the field of bio-robotics and bionics, and include surgical robotics, micro/nano devices for endoscopy, bio-inspired devices and systems, and assistive and companion robots. Paolo Dario is the author of 400+ journal publications (Scopus), his H-Index is 64 (Scopus). He is co-author of 50+ international patents and co-founder of 5 start-up companies. Paolo Dario has been the coordinator of many large national and European projects. He served as Editor-in-Chief, Associate Editor and member of the Editorial Board of many international journals in biomedical engineering and in robotics. He is Founding Editorial Board Member of the Journal “Science Robotics”, Associate Editor of the IEEE Transactions on Biomedical Engineering and Editor-in-Chief of the new IEEE Transactions on Medical Robotics and Bionics. Paolo Dario is an IEEE Fellow and a Fellow of the European Society on Medical and Biological Engineering. He served as President of the IEEE Robotics and Automation Society and received many prizes and Awards, including the 1996 Joseph Engelberger Award for Medical Robotics, the 2014 IEEE RAS George Saridis Leadership Award, and the 2017 IEEE RAS Pioneer Award for Biorobotics.

Professor Yong Huang

University of Florida, USA

Biography

Dr. Yong Huang is a professor of Mechanical and Aerospace Engineering, Biomedical Engineering, and Materials Science and Engineering at the University of Florida, Gainesville, Florida. His research interests are two-fold: 1) processing of biological and engineering materials for healthcare/energy applications, and 2) understanding of dynamic material behavior during manufacturing and process-induced damage or defect structures. His current research topics include three-dimensional (3D) printing of biological and engineering structures, precision engineering of medical implants and performance evaluation of machined implants, and fabrication of polymeric microspheres / microcapsules / hollow fiber membranes. He served as the Technical Program Chair for the 2010 American Society of Mechanical Engineers International Manufacturing Science and Engineering Conference (ASME MSEC 2010) and the 2012 International Symposium on Flexible Automation (ISFA 2012). He received various awards for his manufacturing research contributions including the ASME Blackall Machine Tool and Gage Award (2005), the Society of Manufacturing Engineers Outstanding Young Manufacturing Engineer Award (2006), the NSF CAREER Award (2008), and the ASME International Symposium on Flexible Automation Young Investigator Award (2008). He received his Ph.D. in Mechanical Engineering from the Georgia Institute of Technology in 2002 and is a Fellow of ASME.

Keynote Speakers

Prof. Luming Li, Tsinghua University, China

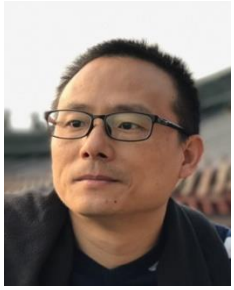
Li Luming, Ph.D. & Cheung Kong Scholar Chair Professor, Dean of School of Aerospace Engineering, Tsinghua University. founding director of National Engineering Laboratory for Neuro-modulation.

Dr. Li's research activities focused on two areas: To develop medical devices or equipment for Chinese Astronauts in Chinese Manned Space Engineering, such as monitoring the health conditions, measuring the astronauts' mass in space. The other is neuromodulation technology. As a leader of a multi-disciplinary research group at Tsinghua University, China, he has designed and invented a novel deep brain stimulation (DBS) device and move to clinical application in last 20 years. Till now, more than 8800 patients with Parkinson's Disease, dystonia and etc. implanted his devices in 220 medical centers in China and the other 4 countries. He was awarded First prize of National Science and Technology Progress Award, China, 2018.

Prof. Zhiwu Han, Jilin University, China

Prof. Zhiwu Han is the Dean of Key Laboratory of Bionic Engineering of Ministry of Education (KLBE), Jilin University. He was selected as the Changjiang Scholar, and the Distinguished Young Scholar of NSFC. He was also the Senior Visiting Scholar at Oxford University in the UK, the State Representative of International Society of Bionic Engineering (ISBE), and the ISBE Fellow. His research interests include machinery biomimetics, biomimetic functional surfaces, bioinspired sensors, and bionic technologies applied in engineering, etc. In the past decades, he has published more than 100 SCI articles in high-level journals , such as Nature, Advanced Materials, Advanced Functional Materials, ACS Nano, Small, ACS AMI, Nanoscale, Langmiur, APL, etc.

Prof. Zhongze Gu, Southeast University, China



Zhongze Gu is currently the professor and the dean of School of Biological Science and Medical Engineering of Southeast University, the director of JITRI Institute of Biomaterials and Biomedical Devices. He is also the council member of the Chinese Society of Biomaterials, the Chinese Society of Biomedical Engineering, and the Chinese Society for Cognitive Science. He graduated from Southeast University (China) in 1989 and got his M.S. in 1992 there. He received his Ph.D. degree in 1998 from the University of Tokyo (Japan). From 2003, he has been a Cheung Kong Scholars Professor at Southeast University. His research interests include bio-inspired intelligent materials, colloidal crystals, and organ-on-a-chip. He is now a leader of a National Key R&D Program of China, which is responsible for promoting the development of Organ-on-a-chip in China.

Prof. Tao Xu, Tsinghua University, China

Dr. Xu obtained his Ph.D. in Bioengineering from Clemson University, SC, USA in 2005 and had worked as Research Scientist at Wake Forest Institute for Regenerative Medicine, NC, USA from 2005 to 2008. Before moved back to China, Dr. Xu had been appointed as a tenure-track Assistant Professor at University of Texas at El Paso from 2008-2013, and also been served as Adjunct Professor at Wake Forest University and Texas Tech University from 2010-2013.

As one of the pioneers to develop cell and organ printing, Dr. Xu owns the first patent of inkjet printing of viable cells (US7051654) which had been indexed in Wikipedia, and published the first article on cell inkjet printing, which was reported by Science as a major breakthrough in the field. Besides, Dr. Xu has obtained various supports from U.S. and China federal agencies, such as US NSF, NIH, and Chinese High-Tech 863 Program. Dr. Xu has published over 200 peer-reviewed articles and abstracts, and owned 53 licensed US, Europe, China and other international patents. Moreover, Dr. Xu has successfully commercialized a series of regenerative medical devices including the dural repair patch, which was approved by CE, Chinese FDA, Korean FDA and has been applied clinically in over 60 countries with more than 200,000 patients.

Prof. Jinwu Wang, Shanghai Ninth People's Hospital, Shanghai Jiao Tong University

Professor Jinwu Wang（M.D.）, chief physician of Department of Orthopedics, Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, part-time professor and doctoral supervisor of Shanghai Jiao Tong University School of Biomedical Engineering. Now he is the deputy director of Key Laboratory of Intelligent Control and Rehabilitation Technology of Ministry of Civil Affairs, the excellent technical leader in Shanghai, the leader of Key disciplines of Bone and Joint Rehabilitation of Shanghai Municipal Commission of Health and Family Planning, the director of innovation center for rehabilitation AIDS of Shanghai Jiao Tong University, the evaluation expert of CFDA, and the chief scientist of national key research and development program of ministry of science and technology. He has focused on the clinical research of osteoarthrosurgery, peripheral nerve, 3D printing of digital medicine, etc. He has published over 80 research papers in high-impact journals as the first author or corresponding author, including 20 SCI papers. He was enrolled into "Shanghai Rising-Star Program", "Shanghai Pujiang Plan" and "Shanghai Municipal Education Commission—Gaofeng Clinical Medicine Grant Support".

Prof. Shuqi Wang, Zhejiang University, China

Dr. Shuqi Wang is a Professor at the Institute of Translational Medicine, at Zhejiang University. Dr. Wang's research interests include the bio-manufacturing of tissues and organs, organ-on-a-chip, and microfluidic chips for point-of-care testing. He has published many papers in renowned peer-reviewed papers such as ACS Nano, Chemistry Society Reviews, Small, Biotechnology Advances, PNAS, Biomaterials, etc. His work has been recognized with awards such as the BWH Biomedical Research Institute Translatable Technologies & Care Innovation Award.

Prof. Jiankang He, Xi'an Jiaotong University, China

Jiankang He is a full professor at the School of Mechanical Engineering, Xi'an Jiaotong University (XJTU), China. He received his PhD in Mechanical Engineering from XJTU in 2010. During 2008 and 2010, he studied in Harvard-MIT Health Science & Technology (HST) as a joint PhD candidate. He is now the Vice Director of State Key Laboratory for Manufacturing Systems Engineering. He was selected as the Changjiang Young Scholars Program in 2017 and NSFC Excellent Young Scholars in 2014. His research mainly focuses on multiscale bio-additive manufacturing. He is the authors of 30 issued Chinese invention patents and 70 peer-reviewed articles. Ten of these research articles were featured as "cover image", "highlighted paper", "featured article", "highly commended awards" and "VIP paper". His research on the additive manufacturing of biodegradable scaffolds has been in clinical trials. He has been awarded the first prize of Natural Science Awards for Universities from Shaanxi Province in 2017, the first prize of Technology Invention Awards from Ministry of Education of China in 2011 and Highly Commended Awards from international Emerald publisher in 2007. He is currently the Associate Editor of International Journal of Bioprinting and the editorial member of Virtual and Physical Prototyping (IF=6.8).

Prof. Wenguang Liu, Tianjin University, China

Dr. Wenguang Liu is a full Professor of School of Materials Science and Engineering at Tianjin University. He earned his PhD in Biomedical Engineering in 1999 from Tianjin University. Dr. Liu was a visiting scholar at The University of Hong Kong from July 2003 to January 2004. He did postdoctoral research at the Department of Cellular and Molecular Medicine, University of Ottawa (Canada) from March 2005 to November 2006. His current research interests are biofunctional hydrogels, regenerative medicine and tissue engineering. Dr Liu is the recipient of 2013 National Natural Science Funds for Distinguished Young Scholar.

Prof. Yanen Wang, Northwest University of Technology, China

Yanen Wang, Ph.D, Professor/Doctor, Director of Biomanufacturing Innovation Experimental Platform, Northwest University of Technology, National Key Specialty of Mechanical and Electronic Engineering, the National Network Top-level quality Open Course "3D Printing Technology and Application" and Master's Degree Course "Decrypting 3D Printing" of Ministry of Education . as the Director of Shaanxi 3D Printing Industry Technology Alliance, Technical Adviser of Shaanxi Medical 3D Printing Expert Committee, Member of Science and Technology Committee of Shaanxi Quality and Technical Supervision Bureau, Standing Member of Shaanxi Digital Orthopaedics Society, Member of China Biomaterials, Editorial Committee of J. Tissue Sci. & Eng., Editorial Committee of J. Biotech & Bioeng. Mainly engaged in research related to 3D printing of ceramic powder, presided over the National Natural Science Foundation of China, 30 international cooperation projects, provincial and ministerial research funds; published one academic monograph; in Matials & Design, J. Mater. Sci., J. Mech. Behav. Biomed, Cell Biochem. and Biophy., Chinese Science, Mechanical Engineering. More than 60 academic papers have been published, including 30 SCI papers and 27 EI papers. He cited 1700 times, authorized 16 invention patents and successfully transferred 4. J. Mater. Sci. & Engineering C, Scientific Reports, J. Mechan. Eng. Drug Development and Industrial Pharmacy reviewers.

Prof. Jun Yin, Zhejiang University, China

Jun Yin received the Ph.D. degree in mechanical engineering in 2011. From 2011 to 2013, he was a post-doctoral scholar with the School of Medicine, University of California at Los Angeles, Los Angeles, CA, USA. Since 2014, he has been a Professor with the School of Mechanical Engineering, Zhejiang University. His main research interests are focused on the design and modeling of biofabrication processes, synthesis and application of biomaterials, and biomechanics.

Prof. Xiaobin Xu, Tongji University, China

Xiaobin Xu received B.S. (2007) and M.S. (2010) degrees from Zhejiang University in Materials Science and Engineering, and received Ph.D. (2014) degree from the University of Texas at Austin (Prof. Donglei Fan's Group). Between 2015/07 to 2018/09, he was a Postdoctoral Scholar at University of California Los Angeles (Prof. Paul S. Weiss's group). In 2018/09, he return to China and started his research group at Tongji University as a professor. Prof. Xu is the receipt of Shanghai Oversea High-Level Introduction Plan (Innovation Long Term Project), Shanghai Export and Tongji 100-Talents Project. Dr. Xu's research focuses on developing smart nanodevices, nanorobotics and their biomedical applications. Dr. Xu has published > 30 papers in leading journals including Angew Chem Int Ed, Adv Mater, ACS Nano, Nat Commun, Nano Lett, and receive citation >1400 times. His research were highlighted by Science in Editor's Choice, featured on journal covers multiple times (including Adv Mater, ACS Nano), as well as interviewed and reported by NBC and NSF.

Prof. Maling Gou, Sichuan University, China

Maling Gou is a professor at State Key Laboratory of Biotherapy, West China Hospital, Sichuan University. His research is focused on 3D printing and nanotechnology enabled or improved advanced treatments for cancers and nerve injury. He has published more than 90 peer-reviewed papers in the international journals, such as Nature Commun, Adv Funct Mater, ACS Nano, Adv Sci, Nanoscale, Adv Drug Deliver Rev. H-index has been above 30. In the meantime, he is the vice-chairman of 3D Printing Branch, China Medicinal Biotech Association (CMBA), Beijing, China and editorial members of more than 5 international journals. As well, he holds over 10 National Invention Patents, some of them have been transferred to pharmaceutical companies for further development. In 2014, he wined National Outstanding Youth Science Foundation.

Prof. Xuetao Shi, South China University of Technology, China

Xuetao Shi received a Ph.D. degree of Technology from South China University of Technology in 2010 and joined WPI-Advanced Institute for Materials Research at Tohoku University as a post-doctor researcher and assistant professor in 2010. He is now the professor of South China University of Technology, and the research fellow of Key Laboratory of Human Tissue Regeneration and Restoration at Peking University Shenzhen Institute. His research interests cover biomedical materials, tissue engineering, regenerative medicine and biomicrofluidics. He has published several scientific papers in the preeminent journals such as Advanced Materials, Advanced Function Materials, Angewandte Chemie International Edition, Materials Horizons, and Biomaterials.

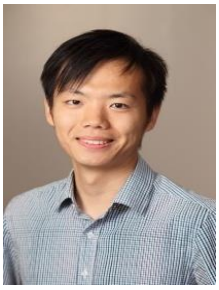
Prof. Zhengwei You, Donghua University, China

Zhengwei You is a full professor at the State Key Laboratory of Chemical Fibers & Polymer Materials and the Chair of the Department of Composite Materials, College of Material Science & Engineering at Donghua University. He received his degrees of B.S. (2000) from Shanghai Jiao Tong University and Ph.D. (2007) from Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences. From 2007 to 2012, he conducted his postdoctoral research on biomaterials at Georgia Institute of Technology and University of Pittsburgh. Prior to joining Donghua University in 2013, he was an innovation manager in Bayer MaterialScience. His current research involves smart polymers, 3D printing, biomaterials, regenerative medicine, and stretchable electronics. His research has been focusing on design and synthesis of a series of functional biomaterials with attractive bioactivity, bioelastomers with superior mechanical properties, dynamic bonds based smart polymers with intelligent properties such as self-healing and shape memory. He has published more than 60 peer-reviewed papers in the high impact journals, such as Advanced Materials, Advanced Functional Materials, Materials Horizons, Nano Energy. applied for more than 30 patents with 12 granted, and contributed one book chapter. His research has gotten funding support from various sides including National Natural Science Foundation of China, National High Technology Research and Development Program (863 program), and the Department of Defense USA. He has delivered more than 20 invited lectures in international and national conferences.

Prof. Kaihui Nan, Wenzhou Medical University, China

Kaihui Nan, Ph.D. is the professor of School of Ophthalmology and Optometry, Wenzhou Medical University. Professor Nan obtained his Ph.D. in Biomaterials from South China University of Technology in 2005. After finished his postdoctoral study at Southern Medical University, Professor Nan joined Wenzhou Medical University as a professor and doctoral supervisor in 2007. He was chosen as one of Youth Discipline Leaders in Zhejiang Province and appointed as the research center director at Wenzhou Institute of Biomaterials and Engineering. Also, professor Nan was selected to join the 151 Talent Project of Zhejiang Province and the 551 Talent Project of Wenzhou. So far, he has had 50 peer-reviewed publications and holds five national invention patents. His main research interests include surface modification of biomedical materials, drug-controlled release technology, development of substrate materials, repair and regeneration of optic nerve injury.

Prof. Shiyu Liu, Fourth Military Medical University, China



Shiyu Liu, Ph.D., is Associate Professor and Associate Chair of Tissue Engineering Center of the Fourth Military Medical University. Dr. Liu received his Ph.D. degree in the Fourth Military Medical University School of Stomatology. His research is supported by the Young Elite Scientist Sponsorship Program by CAST, and National Natural Science Foundation of China. He was honored “Excellent Investigator Award” of Tissue Engineering and Regenerative Medicine Committee of CSBE at 2019 and “Young Investigate Award” of “SOBCSA Forum” at 2015.

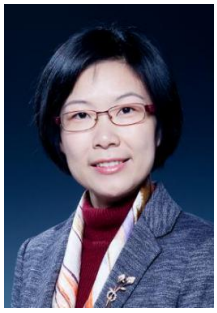
Shiyu Liu has been engaged in the studies of mechanisms underlying therapeutic effects generated by Mesenchymal Stem Cells (MSCs) and their Extracellular Vesicles (EVs). He found that the EVs released by MSCs generate durable therapeutic effects on disease via epigenetic and autophagic regulation of the recipient cell functions. He and his collaborators also constructed biomaterials to manipulate the endogenous EV biodistribution, and constructed chimeric EVs functionalized with natural membrane and modular delivery system for disease therapy. Shiyu Liu has published more than 20 peer-reviewed articles in a variety of scientific journals including Cell Metabolism, Cell Death Differ, Theranostics, ACS Applied Materials & Interfaces, Adv Healthc Mater. He was also invented to be the reviewers of international journals including Tissue Engineering, Stem Cells Dev, and Oral Disease.

Dr. Changchun Zhou, Sichuan University, China

Changchun Zhou is now an associate professor and master's tutor in the National Engineering Research Center for Biomaterials, Sichuan University. He received his PhD degree from Sichuan University in 2011. From 2008 to 2010, he was a joint PhD student at the University of Washington and the University of Texas at Austin.

His research interests cover bone tissue engineering; 3D printing or biofabrication of biomaterials and implants ; Bionic design and mechanical simulation of biomaterials. He has published more than 30 scientific papers. He has applied 17 national patents, among of which 7 patents have been authorized.

Dr. Ting Zhang, Tsinghua University



Ting Zhang is currently an Associate Professor at Biomanufacturing Center, Department of Mechanical Engineering, Tsinghua University. She is also affiliated to Biomanufacturing and Rapid Forming Technology Key Laboratory of Beijing, and Biomanufacturing and Engineering Living Systems Innovation International Talents Base (111 Base). She received her B.S. in Mechanical Engineering and Ph.D. in Materials Science and Engineering from Tsinghua University. She also obtained an Engineering Diploma (M.S.) from Ecole Centrale de Lyon in France. She once worked in the Department of Biomedical Engineering at Columbia University as a visiting Ph.D. student, and in Brigham and Women's Hospital, Harvard Medical School as a visiting scholar. Dr. Zhang's research is focused on bio-manufacturing of biomimetic models and complex tissue precursors with advanced bio-3D printing technologies, tissue/organ-on-a-chip, as well as application in tissue engineering, regenerative medicine, drug screening studies, biobots, etc.

Dr. Yuanyuan Liu, Shanghai University, China

Yuanyuan Liu is a Professor and Doctoral Tutor of Shanghai University. Her research focus is in the area of bio-3D printing, bio-manufacturing, micro-nano manipulation and so on, and more research has been accumulated in the construction and active regulation of artificial biological tissues/organs. During the research period, she has visited the University of Michigan in the United States and the University of Toronto in Canada as a visiting scholar. She has been granted more than 30 patents for invention, and has published more than 80 academic papers , including many TOP journal papers in the field. The bio-3D printing equipment developed by her team has been publicized and reported by many authoritative media such as CCTV and Science and Technology Daily, and won the first prize in the University exhibition area of the 20th China International Industrial Exposition.

Dr. Liang Ma, Zhejiang University, China

Dr Liang Ma got both B.Eng in Material Science & Engineering and B.Sc in Bioinformatics in Zhejiang University in 2005.He obtained his PhD degree from the University of Washington (Supervisor: Prof Wei Li) in Mar 2012. He joined School of Mechanical Engineering in 2017 collaborated with Prof. Huayong Yang for 3D bioprinting. He is now the Assistant Professor in the School of Mechanical engineering, Zhejiang University.

His research interests including high resolution 3D bioprinter development, 3D bioprinting of tissues and organs especially tumor in vitro models, organs-on-chip. He adopted genomics and proteomics approaches to analysis the fundamental gene and protein variations during 3D cell culture and bioprinting. He has published more than 30 journal papers and has more than 10 patents. He now severs as an editor for the journal of Bio-Design and Manufacturing.

Dr. Shaohua Ma, Tsinghua University, China

Shaohua Ma is a tenure-track assistant professor at Tsinghua University and a core-PI at Tsinghua-Berkeley Shenzhen Institute, China. He obtained BEng from Sun Yat-sen University (China) in 2009, and MPhil and PhD degrees from the University of Cambridge in 2010 and 2013, under the supervision of Prof. Wilhelm T. S. Huck. After that, he was a postdoctoral research associate at the University of Oxford (Supervisor: Prof. Hagan Bayley FRS) until August 2017. Prof. Ma works on microfluidics, organ-on-a-chip, 3D bioprinting and micro-fabrications, towards translational developments in precision and regenerative medicine.

Prof.Mario Domingo Monzón Verona, ULPGC, Spain

Mario Monzón is a doctor industrial engineer and full professor in the Mechanical Engineering Department of Las Palmas de Gran Canaria University (ULPGC). He is coordinator of the research group of Integrated and Advanced Manufacturing, which main research fields are Polymer processing, additive manufacturing (AM), rapid tooling, natural fibres and applications in composite materials and technical textiles, biomaterials for additive manufacturing and biofabrication. He is a member of the committee ISO TC261 and CEN TC438 for standardization of additive manufacturing technologies, representing Spain in such a committee. Also, He is the convenor of the Joint working group JWG7 “Additive Manufacturing for Plastics” with the participation of experts from ISO TC261 (AM), ISO TC61 (thermoplastics) and ASTM F42 (AM). Coordinator of the PhD program of Chemical, Mechanical and Manufacturing Engineering of ULPGC. Member of the manager board of the doctorate school of ULPGC. Participation in 31 national and European research projects (20 of them as coordinator), 18 research projects funded by companies, 67 scientific publications (34 in indexed publications), participation in 64 proceedings of conferences, supervisor of 7 doctoral thesis, 7 national patents and 1 international patents (in 5 countries). Editor of the book “Additive Manufacturing-Developments in Training and Education (Springer) and the book “Guía de tecnologías de Rapid Manufacturing”. Member of the editorial board of the international journal “Bio-design and Manufacturing (Springer).

Social Activities (optional)

Route 1:

Porcelain House 瓷房子→Italy Scenic Area 意大利风景旅游区→The Eye of Tianjin 天津之眼



Route 2:

Traditional Culture Street 古文化街

Notes

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The 2nd International Conference on Biomaterials, Bio-Design and Manufacturing

September 04-06, 2019

Hosted by
School of Mechanical Engineering
Tianjin University

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