

October 26-28, 2016. Beijing, China

STEM 2016 Conference Overview

Conference Venue: Jingshi Conference Hall (JCH)

Lunch and Dinner: Lanhui Restaurant/ Jingshi Hotel Restaurant

Conference Banquet: Wednesday, 26 October, 2016.

Date	Time	Event	Location
25 October	14:00 ~ 17:00	Registration	Jingshi Hotel 1F
26 October	08:00 ~ 08:30	Registration	JCH 1F
	08:30 ~ 09:00	Open Ceremony	JCH Jingshi Hall
	09:00 ~ 10:00	Keynote 1 Title: Leveraging Advances in Technology to Improve STEM Teaching and Learning Dr. Marcia C. Linn , Professor, Education in Mathematics, Science, and Technology, University of California, Berkeley, USA	JCH Jingshi Hall
	10:00 ~ 10:30	Coffee Break	JCH 1F
	10:30 ~ 12:00	Parallel sessions 1	JCH Conference Room 1 Conference Room 2 Conference Room 3 Conference Room 7
	12:00 ~ 13:30	Lunch	Lanhui Restaurant 2F
	13:30 ~ 14:30	Keynote 2 Title: Research on Development and Application of an Open Source Software Named Mixly for Maker Education Dr. Qian Fu , Associate professor, School of Educational Technology, Beijing Normal University, Beijing	JCH Jingshi Hall
	14:40 ~ 16:00	Parallel sessions 2	JCH Conference Room 2

			Conference Room 3 Conference Room 7
	16:00 ~ 16:20	Coffee Break	JCH 1F
	16:00 ~ 17:20	Poster session	JCH 1F
	16:20 ~ 17:20	Parallel sessions 3	JCH Conference Room 2 Conference Room 3 Conference Room 7
	18:30 ~ 20:00	Conference Banquet (Pearson Night)	ShuGuo YanYi Restaurant
27 October	08:30 ~ 09:00	Registration	JCH 1F
	09:00 ~ 10:00	Keynote 3 Title: To Choose STEM or not: What Inspires Young People to Make Life Choices in STEM? Dr. Shirley Simon , Professor in Education, Department of Curriculum, Pedagogy and Assessment, UCL Institute of Education, University College London, UK	JCH Jingshi Hall
	10:00 ~ 10:30	Coffee Break	JCH 1F
	10:30 ~ 12:00	Parallel sessions 4	JCH Conference Room 2 Conference Room 3 Conference Room 7
	12:00 ~ 13:30	Lunch	Jingshi Hotel Restaurant 2F
	13:30 ~ 15:00	Parallel sessions 5	JCH Conference Room 2 Conference Room 3 Conference Room 7
	15:00 ~ 15:30	Coffee Break	JCH 1F
	15:30 ~ 17:30	Parallel sessions 6	JCH Conference Room 2 Conference Room 3 Conference Room 7
	18:00 ~ 19:30	Dinner	Jingshi Hotel Restaurant 2F
28 October	08:30 ~ 09:00	Registration	JCH 1F

	09:00 ~ 10:00	Keynote 4 Title: The Finnish LUMA Model for Promoting Math, Science and Technology Education Dr. Maija Aksela , Professor, Research Director, Chemistry Teacher Education Unit, Department of Chemistry, University of Helsinki, Finland	JCH Jingshi Hall
	10:10 ~ 11:10	Parallel sessions 7	JCH Conference Room 2 Conference Room 3 Conference Room 7
	11:10 ~ 11:30	Coffee Break	JCH 1F
	11:30 ~ 12:30	Closing Ceremony	JCH Jingshi Hall
	12:30 ~ 14:00	Lunch	Jingshi Hotel Restaurant 2F

STEM 2016 Conference Schedule

Tuesday, 25 October, 2016. Venue: Jingshi Hotel

Time	Event	Location
14:00 ~ 17:00	Registration	Jingshi Hotel

Wednesday, 26 October, 2016. Venue: Jingshi Conference Hall

Time	Event	Location
08:00 ~ 08:30	Registration	JCH 1F
08:30 ~ 09:00	Opening Ceremony	JCH Jingshi Hall
09:00 ~ 10:00 Keynote 1	<p>Title: Leveraging Advances in Technology to Improve STEM Teaching and Learning</p> <p>Dr. Marcia C. Linn, Professor, Education in Mathematics, Science, and Technology, University of California, Berkeley, USA</p>	JCH Jingshi Hall
10:00 ~ 10:30	Coffee Break	JCH 1F

Parallel Session 1

Chair: Dr. Jingjing Zhang

Time	Presenter	Title	Location
10:30 ~ 12:00	James J Watters and Carmel M Diezmann	FULL PAPER A Multimedia Third Space to Enhance Pre-Service Teacher Education	JCH Conference Room 1
	Tantan Dong, Yingying Zhang and Feng-Kuang Chiang	FULL PAPER The Study of Teaching Model in Building Blocks Based on K'NEX	
	Man-Wai Chu and Jacqueline P. Leighton	FULL PAPER Use of Learning Errors and Formative Feedback (LEAFF) Model to Improve Scientific Inquiry Skills	

	Kazuya Kageyama	SHORT PAPER Steps to the First, Local Philosophy of STEM Education	
Chair: Dr. Terry Lyons			
10:30 ~ 12:00	James Davis and Alberto Bellocchi	FULL PAPER Emotional Energy in Learning Science: A Study of Conceptual Entrainment	JCH Conference Room 2
	Selline Ooko, Festus Beru, Samson Madera, David Anderson and Elizabeth Namazzi	FULL PAPER The Impact of Contextualized Science Teaching Workshop on Student Performance in Kenyan National Examinations: The Case of a Girls Science Class and Kenya Certificate of Secondary Education (KCSE) Examination	
	Kwesi Yaro and Samson Nashon	SHORT PAPER Contextualized Support for Mathematics Learning: The Case of Rural Ghanaian Parents and their Children	
	Mei Tsen Chen and Ying Cheng Yen	SHORT PAPER Links Between Nanotechnology and Museum Exhibition: A Curatorial Perspective	
10:30 ~ 11:30	Semia	WORKSHOP Robotics Introduction	JCH Conference Room 3
10:30 ~ 11:30	Marina Milner-Bolotin	WORKSHOP Three Examples of Promoting Technology-Enhanced Collaboration in STEM Teacher Education – From Theory to Research-informed Practice	JCH Conference Room 7

12:30 ~ 13:30	Lunch	Lanhui Restaurant 2F
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Time	Event	Location	
13:30 ~ 14:30 Keynote 2	Title: Research on Development and Application of an Open Source Software Named Mixly for Maker Education Dr. Qian Fu , Associate professor, School of Educational Technology, Beijing Normal University, Beijing	JCH Jingshi Hall	
Parallel Sessions 2			
Chair: Dr. Marina Milner-Bolotin			
Time	Presenter	Title	Location
14:40 ~ 16:00	Danhui Zhang, Karen Skilling and Janette Bobis	FULL PAPER Autonomy Supportive Teaching Practices: International Perspectives	JCH Conference Room 2
	Kazuaki Yoshihara and Kenzi Watanabe	SHORT PAPER A STEM Experiment to Establish Female High School Students as “RIKE-JYO”	
	Ruilin Wang, Chunxia Qi and Di Huang	SHORT PAPER On the Eighth Grade Mathematics Achievement and its Effect Factors ----- Based on Seven Regions Study	
	Shengqing He, Mengwei Lin, Mengling Liu and Chunxia Qi	SHORT PAPER Project-based Math-Sci Interdisciplinary Curriculum Design and Teaching Trajectory: A Preliminary Case of “Explore the Super-Earth”	
14:40 ~ 15:40	Semia	WORKSHOP Robotics Science and Exploration Lab	JCH Conference Room 3
14:40 ~ 15:40	Elvis Minga, Sandra	WORKSHOP	JCH

	Inga and Monica Quinones	Making STEM Content Comprehensible and Accessible to ELs via Problem-based Learning and Hands-on Inquiry	Conference Room 7
16:00 ~ 16:20	Coffee Break		JCH 1F

Parallel Sessions 3

Chair: Dr. Samson Madera Nashon

Time	Presenter	Title	Location
16:20 ~ 17:20	Weiyin Chang, Suhwa Lin and Zhiqiang Luan	FULL PAPER Constructing the Environmental Education Scale in Environmental Literacy- Case Study of High-Level Graders at Elementary Schools in Taiwan	JCH Conference Room 2
	Beaumie Kim and Reyhaneh Bastani	FULL PAPER Game Design Literacy as STEM Competencies	
	Guangtao Xu, Xunlei Yang and Chunlei Zhang	SHORT PAPER Research on Chinese Middle School Students' Scientific Practices of Ecosystem with the Affordance of Virtual World	
16:20 ~ 17:20	Semia	WORKSHOP Metal Robot Design and Program	JCH Conference Room 3

Chair: Dr. Min Liu

16:20 ~ 17:20	YiFei Wang, Stephen Petrina	FULL PAPER VILLAGE—Virtual Immersive Language Learning and Gaming Environment: Immersion and Presence	JCH Conference Room 7
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Jennifer Jing Zhao, Wenting Ma, Stephen Petrina, Phil Winne	FULL PAPER Smart Learning System
Pengfei Liu and Qianning Chen	SHORT PAPER The School-based Curriculum Development About Origami Based on the STEM Education Concept

Poster Sessions

Time	Presenter	Title	Location
16:00 ~ 17:20	Festus Beru, Samson Nashon, Isaac Ipara, Selline Ooko and Peter Okemwa	Challenges Facing Sustainable E-waste Management in Technical Vocational Educational Training Institutions: A case of Eldoret Municipality Kenya	JCH 1F
	Ruxue Wang, Lingxi Zhang, Shan Wang	Emotion Discrimination Based on EEG Signals: Potential Application to STEM Education	
	Peter Okemwa, Samson Nashon, Josephat Sawe, Hebert Dimo, Joash Michoma, Kitur Kipchirchir and Festus Beru	Skills of Automotive Technology Graduates of the University of Eastern Africa, Baration Kenya	
	Will Valley, Alice Cassidy, Katherine Miller, Kyle Nelson, Cyprien Lomas and Guopeng Fu	Preparing Students for Complexity and Uncertainty: Flexible Learning in the Land, Food & Community Series	
	Qi Chunxia, Wang Ruilin, Lin Mengwei and Chen Jing	Does a Project-based Learning Material Improve Students' Understanding of Rational Number? A Case Study	

	Ma Jun	Practical Research on Three-dimensional Training System for Pupil's Mathematical Intellectual Sensitivity	
	Jung Jin Choi and Mi Hyun Yoo	The Analysis of Art-converged Science and Math Gifted Program's Effects on Scientific Characteristic and Academic Self-efficacy of the Elementary School Students	
	Lisa Fazio, Deborah Corrigan, Greg Lancaster and Joanne Burke	Engaging Teachers with Contemporary STEM Practices	
	Lu Jijian and Jiang Piao	A Study on the Recognition to STEM SOS Model in Chinese Mathematics Normal Students	
	Chen Fengying and Han Xue	Museum-school Combined STEAM Course Design: "The Reflection of Light"	
	Gabriela Alonso-Yanez, Armando Preciado, Barb Brown and Pratim Sengupta	Exploring STEM Professional Learning: A Social Network Analysis	
	Xiao Huang and Mengru Jia	Investigation and Reflection: Junior High School Science Teachers' Understanding and Pedagogy of Technology in Science Teaching	
18:30 ~ 20:00	Conference Banquet (Pearson Night)		ShuGuo YanYi Restaurant

Thursday, 27 October, 2016. Venue: Jingshi Conference Hall

Time	Event	Location
08:30 ~ 09:00	Registration	JCH 1F
09:00 ~ 10:00	<p>Title: To choose STEM or not: what inspires young people to make life choices in STEM?</p> <p>Dr. Shirley Simon, Professor in Education, Department of Curriculum, Pedagogy and Assessment, UCL Institute of Education, University College London, UK</p>	JCH Jingshi Hall
10:00 ~ 10:30	Coffee Break	JCH 1F

Parallel Sessions 4

Chair: Dr. Shaun Nykvist			
Time	Presenter	Title	Location
10:30 ~ 12:00	Lu Jijian and Jiang Piao	FULL PAPER A Study on the Recognition to STEM SOS Model in Chinese Mathematics Normal Students	JCH Conference Room 2
	Yang Dan, He Kaiqiang, Liu Longchao and Liu Min	FULL PAPER From STEM Project-Based Learning to Authentic Science Practice :A Case Study	
	Guopeng Fu and Will Valley	SHORT PAPER Connecting Environmental Education between University and K-12 Schools: A Flexible Learning Approach	
10:30 ~ 12:00	Janice Bogstad, Guoyan Hou, Wei Ran, Junmei	WORKSHOP Session: Supporting STEM	JCH Conference Room 3

	Niu and Wu Yan	Education Thorough Interdisciplinary Science Fiction Texts: Overviews and Methods	
10:30 ~ 12:00	Pearson	WORKSHOP Pearson STEM Education Solution : Cultivate 21st Century Talent with Interdisciplinary Knowledge and Skills and Innovative Spirit	JCH Conference Room 7
12:30 ~ 13:30		Lunch	Jingshi Hotel Resturant 2F

Parallel Sessions 5

Chair: Dr. Guang Chen

Time	Presenter	Title	Location
13:30 ~ 15:00	Chun-Hao Chang, Sandra Okita	FULL PAPER Exploring How Video Gameplay Experiences Can Become a Roadmap For Children To Learn Computer Programming Concepts	JCH Conference Room 2
	Sharon Fraser, Margaret Penson, Andrew Seen, Kim Beswick and Robert Whannell	FULL PAPER Cross Faculty Collaboration in the Development of an Integrated Mathematics and Science Initial Teacher Education Program	
	Carmel Diezmann and James Watters	FULL PAPER Using Resource Pods to Re-envision Pre-Service Teacher Education in Mathematics and Science	
	Kathy Smith and	SHORT PAPER	

	Ange Fitzgerald	Starting a Conversation: How School-community Partnerships might Contribute to a Reinvigoration of STEM Education?	
13:30 ~ 14:30	Lin Jiangeng, Li Junchao, Chen Miao, Guo Jingsi	WORKSHOP Research on Interdisciplinary Collaborative Learning of Digital Painting (数字绘画跨学科协作学习探讨)	JCH Conference Room 3
13:30 ~ 14:30	Kuo Wei Lin	WORKSHOP Interactive Application of Digital Tools in Science and Engineering Courses	JCH Conference Room 7
15:00 ~ 15:30	Coffee Break		JCH 1F

Parallel Sessions 6

Chair: Dr. David Anderson

Time	Presenter	Title	Location
15:30 ~ 17:30	Pratim Sengupta and Marie-Claire Shanahan	FULL PAPER STEM as Public Computation and Boundary Play	JCH Conference Room 2
15:30 ~ 17:30	Peter Hudson, Michelle Mukherjee and Shaun Nykvist	FULL PAPER Developing Praxis in a University Setting – Students Co-teaching Primary Science Lessons to Peers	
15:30 ~ 17:30	Yanyan Shan and Qin'an Huang	SHORT PAPER Stem Students in Interdisciplinary Inquiry-based Mathematics Classroom: Outreach	
15:30 ~ 17:30	Angela Rutakomozibwa and Samson Nashon	SHORT PAPER What It Means to be Feminist Physics Laboratory Researcher: Autobiographical Experiences and Lessons for female in	

		STEM Careers	
15:30 ~ 17:30	Masaki Ohtani, Yuka Nakamura, Taiki Watanabe, Norikane Kanai and Yukihiro Yamada	SHORT PAPER Proposal of Chemical Experimental Study to Connect Technology and Engineering by LEGO Mindstorms	

Chair: Dr. Xinglong Zhao

15:30 ~ 17:30	Feng-Kuang Chiang, Shizhe Diao, Haotian Ma, Yujun Wang	FULL PAPER Effects of Hand-on Inquiry Based Learning Using LEGO® Materials on the Learning of Eighth-Grade Physics Students	JCH Conference Room 3
	Xi Chen	FULL PAPER The Exploration in Universal Design for Instruction Principle and Project-based Learning Application	
	Terry Lyons, Frances Quinn, Sue Wilson	FULL PAPER Girls Thriving in Geek Courses	
	Yukihiro Yamada, Takuya Asano, Norikane Kanai, Masaki Ohtani	SHORT PAPER Proposal of Manufacturing Curriculum Using LEGO Mindstorms EV3 for Industrial High School	
	Hong Qi and Qing Li	SHORT PAPER Context Awareness Technology Support for the High School Class	

Chair: Dr. Yan Dong —— Chinese Presentation (中文论文汇报专场)

15:30 ~ 17:30	Xiaolin Zhang,	FULL PAPER	JCH
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	Luyao Wang, Dan Yang	The Teaching Case Design of STEM Based on the Environment of Combining Museum and School - Water Resources Project (基于馆校结合环境下的 STEM 教学案例设计——水资源项目)	Conference Room 7
15:30 ~ 17:30	Liang Zhicheng	FULL PAPER Based On the Discipline, Beyond the Discipline —— Examples on the Development and Evolution of High School's Maker Course (源于学科, 高于学科 ——例谈中学创客课程的开发与演变)	
15:30 ~ 17:30	Long Lichang	FULL PAPER Research on Teacher Training through Project-based Learning (基于项目学习的创客教师培训研究)	
15:30 ~ 17:30	Liang Ting, Mao Chengjie, Qin Fang and Sui Yanbo	FULL PAPER Initially Search on Innovative Teaching of 3D Pictures DIY in Extreme Weather (极端天气下的“3D 照片 DIY”网络直播课教学初探)	
15:30 ~ 17:30	Min Liu, Fengjiang Li, Meiling Liu and Fengkuang Chiang	FULL PAPER Curriculum Design and Evaluation for Astrology Guide in the Grade Three Based on STEM (基于 STEM 的三年级星象指南课程设计与评估)	
15:30 ~ 17:30	Yang Dan, He Kaiqiang, Liu Longchao and Liu	SHORT PAPER A Case Study of the STEM Course Based on the Scientific Research of Fruit Fly	

	Min	(STEM 课程研究—以果蝇的科学探究为例)	
15:30 ~ 17:30	Zhaoning Ye, Jianzhong Zhou and Yuankui Yang	SHORT PAPER A Preliminary Study on the STEM Curriculum Model of Primary and Secondary Schools based on the Concept of "big concept" (基于“大概念”的中小学 STEM 课程模式初探)	
18:00 ~ 19:30	Dinner		Jingshi Hotel Restaurant 2F

Friday, 28 October, 2016, Venue: Jingshi Conference Hall

Time	Event	Location
08:30 ~ 09:00	Registration	JCH 1F
09:00 ~ 10:00 Keynote 4	<p>Title: The Finnish LUMA Model for Promoting Math, Science and Technology Education</p> <p>Dr. Maija Aksela, Professor, Research Director, Chemistry Teacher Education Unit, Department of Chemistry, University of Helsinki, Finland</p>	JCH Jingshi Hall

Parallel Sessions 7

Chair: Dr. Meifeng Liu			
Time	Presenter	Title	Location
10:10 ~ 11:10	Marina Milner-Bolotin and Jungsook Oh	<p>FULL PAPER</p> <p>A Comparative Study of STEM Educators' Views of Technology: A Case of Canada, China and Korea</p>	JCH Conference Room 2
10:10 ~ 11:10	Vinesh Chandra, Richard Medland, Geoff Polzin and Krissy O' Farrell	<p>SHORT PAPER</p> <p>The SEE Box: Creating New Learning Opportunities Across STEM Disciplines in Developing Countries</p>	JCH Conference Room 2
10:10 ~ 11:10	Chia-Cheng Shih and Chih-Hsiung Ku	<p>SHORT PAPER</p> <p>Using Framework of TPACK in Studio-based Learning: Studies of Remote Junior High School Students in Informal Science Curriculum</p>	JCH Conference Room 2
10:10 ~ 11:10	Chen Hua	<p>WORKSHOP</p> <p>Learning through Minecraft</p>	JCH Conference Room 3

10:10 ~ 11:10	Changhua Sun Rich and Donna Matovinovic	WORKSHOP ACT Aspire Online Assessment System Designed to Provide Insights to Inform STEM Education	JCH Conference Room 7
11:10 ~ 11:30	Coffee Break		JCH 1F
11:30 ~ 12:30	Closing Ceremony Outstanding Papers Award STEM 2018 Presentation		JCH Jingshi Hall
12:30 ~ 14:00	Lunch		Jingshi Hotel Resturant 2F

Presentation Format

Research Papers/ Teaching practice papers

- **Full paper:** A total of **20** minutes will be allocated for each full paper. At least 5 minutes must be reserved for questions and comments from the audience.
- **Short paper:** A total of **15** minutes will be allocated for short paper. At least 5 minutes must be reserved for questions and comments from the audience.

Workshop

- A total of **60** minutes will be allocated for each workshop session. Workshop **organizers** will lead the discussion.

Posters

- Put your poster up at least 1/2 hour prior to the start of the poster sessions.
- Your poster must correspond to the title and content of the abstract you submitted.
- Poster presentations must present reports of significant work in research, development and applications with regards to one or more of the conference topics of interest. The display space allocated for posters will be 1.2m wide by 1.2 m high (or 4 feet wide by 4 feet high).
- Plan your poster to be in logical sequence, i.e. introduction, study design and methods, data collected, conclusion.
- To ensure visual effectiveness of your poster, use large lettering and a minimum of text.
- Use of colours can visually enhance your poster.

Facilities (Research Papers/ Teaching practice papers)

- Presentation PCs and projectors will be available in each room. Presenters may also use their own laptops with the Center's multimedia projectors. Any Mac or PC laptop with a standard VGA connector should work. New macs may require a video adapter.

