

Thematic Afternoon

TA1: Demonstration and Discussion of a Plane Geometry Lesson: Teaching “Determination and Properties of Parallel Lines” as a Whole

July 15, 14:00–16:30

Location: T218

Organiser: Secondary Mathematics Teaching Branch of Chinese Society of Education

Underlying Ideas:

Chinese mathematicians and mathematics teachers generally agree that there is no substitute for a plane geometry curriculum in developing students’ spatial concepts and improving their reasoning skills. This lesson seeks to demonstrate a new exploration of a plane geometry curriculum reform. Using basic and simple plane figures as a carrier, the overall teaching design of the unit forms a series of mathematical activities to help students better and more easily understand geometric knowledge and ways to study geometric problems, so that students can develop inductive and abstract skills through geometric concept learning, develop the ability to discover the properties of figures through geometric property exploration, develop logical thinking and the ability to reason through geometric proposition reasoning activities (inferential argumentation), etc. The students will develop logical thinking and reasoning skills through reasoning activities.

Aims:

- (1) To promote international academic communication in mathematics classroom teaching and professional learning of in-service teachers.
- (2) To demonstrate the important role played by the Chinese teaching research system and teaching and research activities in ensuring the quality of classroom teaching and promoting teachers’ professional development, and to enable international mathematics educators to understand the mathematics teaching and research activities in China.
- (3) To explore the reform of plane geometry teaching.

Planned Activities & Working Format & Responsible Person

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|-------------|--|
| 14:00–14:10 | General Introduction of the Activity
Micro Report (Jianyue Zhang) |
| 14:10–15:00 | Video Lesson Demonstration and Self-explanation: “Determination and Properties of Parallel Lines”
Demonstration of the lesson (Jianhao Chen) |
| 15:00–15:10 | Halftime |
| 15:10–15:40 | How an Excellent Lesson is Made? Also on the Characteristics of the Four-level Teaching Research System in China
Report (Da Liu, Caifeng Xiao, Shuangshuang Chen, Xiaodong Mu) |
| 15:40–16:10 | Chinese Geometry Teaching Characteristics: Pursuing the Integration of Intuition and Logic with Holistic Teaching
Comments on the lesson (Zengsheng Wu, Xuan Zheng, Yudong Yang) |
| 16:10–16:25 | Q&A |
| 16:25–16:30 | Summary
(Jianyue Zhang) |

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TA2: The Making of a 3-D Mathematic Adaptive Learning System

July 15, 14:00–16:30

Location: S

Organiser: Xiaoqing Gu, Yan Zhu, Chanjin Zheng, Aiming Zhou
Shanghai Institute of AI in Education, East China Normal University

Description:

This session will present various aspects of a mathematic adaptive learning system developed by Shanghai Institute of AI in Education at East China Normal University. Prof Yuan, the direction of the Institute, will introduce the general blueprint of this system and give a demonstration of a beta version of this system. Then three presenters will further explain the three main elements of this system. Specifically, Prof Zhou

from computer science will present the AI techniques including the algorithms for learning material recommendation, learning path planning, vision recognition etc. Prof Kong, an expert in math learning and teaching, will explicate the instructional design for this system in which the knowledge, cognitive and affective aspects of the math learning (the three dimensions) are considered. Lastly, Prof Zheng, a scholar on computerized adaptive testing and cognitive diagnostic assessment, will talk about the design, techniques and implementation of various assessments in the system.

Planned Activities & Working Format & Responsible Person

- 14:00–14:30** **The Math Adaptive Learning System Demo**
Speech (Prof. Xiaoqing Gu)
- 14:30–15:00** **AI behind the Math Adaptive Learning System**
Speech (Prof. Aiming Zhou)
- 15:00–15:30** **The Instructional Design for the 3–dimensional Math Adaptive Learning System**
Speech (Prof. Yan Zhu)
- 15:30–16:00** **Adaptive Assessments Math Adaptive Learning System**
Speech (Prof. Chanjin Zheng)
- 16:00–16:30** **Questions/Discussion**
Discussion (all the presenters)

TA3: Domesticating Practice of Primary Mathematics Education in China

July 15, 14:00–16:30

Location: T418

Organiser: The Primary Mathematics Teaching Committee of the Chinese Society of Education

Description:

The Primary Mathematics Teaching Committee of the Chinese Society of Education was established in March 1982. It is the first professional organization focusing on primary mathematics education in China, and it has grown to be the largest professional organization of its kind. The committee strives to advance knowledge about primary mathematics education, to encourage scholarly inquiry related to primary mathematics education, and to promote the use of research to improve primary mathematics education and better serve the public good.

The Primary Mathematics Teaching Committee of the Chinese Society of Education provides this symposium to showcase our practical achievement and to share our Chinese Mainland experience with colleagues across the world. The symposium invites outstanding primary mathematics educators, researchers, and teachers to examine the Chinese primary mathematics teaching from a variety of perspectives: reflecting the unique characteristics of Chinese mathematics education to showcase the teaching reform of older generation; examining research and practice on deep learning, problem posing, mathematics understanding to showcase the innovative practice of primary mathematics education in China; presenting adaptable teaching demonstrations and classroom activities with focus on the four domains in primary mathematics to showcase the Chinese classroom teaching practices; reflecting on the reform-oriented approaches to outline the future Chinese primary mathematics practice.

The symposium aims to integrate theories into practice, to share first-hand teaching cases for reflection, to present alternative solutions, interpretations, and to showcase years of exploration and experiences in the primary mathematics teachings in China.

Planned Activities & Working Format & Responsible Person

- 14:00–14:20** **Inheriting the Classics—Chinese Elementary Mathematics Education for Generations**
Panel/Paper discussion
The Origin and Development of “Attempting Teaching Method” in Primary Mathematics Education (Qiu, XueHua (Dean of Attempting Education Institution))

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Maxinlan Teaching Method Centred on “Mathematical Thinking Development”
(Ma, XinLan/Sun, JiaWei (Xinghe Laboratory Elementary school Chaoyang, Beijing))

14:20–15:00

Empowering Innovation—Chinese Primary Mathematics Education Oriented by Students’ Wellbeing

Panel/Paper discussion

Creating “Delicious and Nutritious” Math Education for Children (Wu, ZhengXian (Beijing Academy of Educational Sciences))

The Teaching Reform of “Deep Learning” in Primary Mathematics Education (Ma, YunPeng (Northeast Normal University))

Primary Mathematic Teaching Practice Guided by Children’s Questions (Zhang, Dan (Beijing Academy of Educational Sciences))

Primary Mathematic Practice to Promote Mathematical Understanding (Li, XiaoMei (Liaoning Institute of Education))

15:00–15:50

Lesson Demonstration—Mathematic Teaching in Chinese Elementary Classrooms

Working Group Roundtable: teaching demonstration + discussion

Developing Students’ Number Sense through Recognition of 11–20 (Ni, Fang (Chaoyang Laboratory Elementary School, Beijing))

Developing Volume Sense through “Volume and Capacity” (Wang, LiBing (Jingzhou Elementary School, Hangzhou, Zhejiang))

“Understanding Percent” through Emphasizing Data Analysis (Liu, RengXuan (Qingdao Academy of Educational Sciences, Shandong), Xu, YunHong (Shandong Academy of Educational Sciences))

Mini Action Research “How big is 100 Million” (Liu, Li (Hubei Academy of Educational Sciences))

15:50–16:10

Promising Future— Primary Mathematics Reforms in China

Panel Discussion

Artificial Intelligent and the Primary Mathematics Education Reform in China (Kong, QiPing (East China Normal University))

Curriculum Standards Development and Primary Mathematics Reform in China (Sun, XiaoTian (Minzu University of China))

16:10–16:30

Questions and Discussion

Discussant: NorthEast Normal University

Professor : Ma, Yunpeng

TA4: 12–year Integrated Mathematics Textbook of BNUP: Promoting Well-rounded Student Development

July 15, 14:00–16:30

Location: T419

Organiser: Beijing Normal University Publishing Group

Description:

Chinese mainland started the eighth curriculum reform for basic education in 1999. In 2001 and 2003, *Mathematics Curriculum Standards for Compulsory Educaiton (Experimental)* and *Mathematics Curriculum Standards for Senior High School (Experimental)* were launched.

Entrusted by the Ministry of Education, the core members of the mathematics curriculum standards team formed a group to develop the 12–year integrated mathematics textbooks, which were published by Beijing Normal University Press, or BNUP Maths for short.

BNUP Maths were developed based on the students’ cognitive rules, and featured in developing basic knowledge and promoting future development. The textbooks were integratedly designed for primary school, junior high school and senior high school. They have a unique academic style and distinct Chinese mathematics education features which highlight the essence of Mathematics, develop students’ competence, cultivate students’ practical and innovative ability, and pay attention to the educational function of Mathematics. Each year, more than 30 million students use BNUP Maths to carry out mathematics learning activities, which makes our textbooks one of the most influential mathematics textbooks in Chinese mainland.

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In this international congress, BNUP Maths development team and some of the excellent textbook users will introduce the overall design and features of the textbooks. Some typical cases from different learning periods will be demonstrated on topics like function, reasoning ability and mathematical modeling. We will show the experience of constructing the textbooks, discuss the schema for developing textbooks, and put forward some thoughts and prospects for the construction and development of our textbooks in the future.

Planned Activities & Working Format & Responsible Person

- 14:00–14:15** **Being People-oriented: BNUP Maths in Progressing**
Report (Dong Qi (Beijing Normal University); Lv Jiansheng (Beijing Normal University Publishing Group))
- 14:15–14:30** **The Construction Background of BNUP Maths**
Round-table Interview (Zhang Fei (Jiangsu Second Normal University); Liu Jian (Beijing Normal University); Kong Qiping (East China Normal University); Liu Xiaomei (Capital Normal University); Hu Fengjuan (Capital Normal University))
- 14:30–15:00** **Distinctive Academic Features of BNUP Maths**
Report (Liu Keqin (Zhongguancun No.3 Primary School); Guan Jian (High School Affiliated to BIT); Wang Jianbo (Beijing Normal University Publishing Group); Cheng Yanyun (Changjiang Middle School, Yichang, Hubei province); Zhang Birong (Chengdu Education Research Institute); Zhu Dejiang (Nanhu Teaching and Research Office, Jiaxing, Zhejiang province))
- 15:00–15:50** **Developing Students' Competence: Practice and Case Study on BNUP Maths**
Report (Bao Jiguang (Beijing Normal University); Li hong (Beijing No.22 Middle School); Zhang Dan (Beijing Academy of Educational Sciences); Zhao Yanhui (Primary School Attached to Northeast Normal University); Gu Jiling (Nanjing Normal University); An Zhijun (Qingdao Institute of Educational Sciences))
- 15:50–16:10** **Mechanism in of BNUP Maths Construction: Innovation with Vitality**
Round-table interview (Hu Yu (Beijing Normal University Publishing Group); Sun Jinghong (Beijing Haidian Teachers Training College); Bao Yinxia (Guangdong Academy of Education); Zhang Huiying (Shijiazhuang Institute of Educational Science); Li Yanlin (Capital Normal University); Chen Lihong (Jiangxi Teaching and Materials Research Office))
- 16:10–16:30** **Discussion**
Round-table discussion (Liu Jian (Beijing Normal University); Ma Fu (Nanjing Normal University); Wang Shangzhi (Capital Normal University))

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TA5: From “Telling” to “Showing”: a Zhejiang Mathematics Professional Development Model for Novice Teachers’ Learning from Master Teachers

July 15, 14:00–16:30

Location: T219

Organiser: SI Miao'er (Teaching & Research Institute of Zhejiang Education Department); YU Zhengqiang (The Affiliated Primary School to Jinhua Normal School in Zhejiang Province); YUAN Xiaoping (Hangzhou Xuejun Primary School); TANG Caibin (Hangzhou Shidai Primary School); LIU Minmin (Education Research and Training Center in Jingning She Autonomous County)

Description:

In recent years, an effective paradigm in which novice teachers learn from expert teachers has emerged in China's Zhejiang Province. The teaching researchers staff form a teaching and research community with a number of novice teachers and master teachers, and through the "three stages and ten steps" framework, the novice teachers quickly learn how to teach. In this model, novice teachers, teacher researchers, and master teachers form a teaching research community, where novices learn directly from masters how to teach via the collective and collaborative activities of “master teachers’ observing and discussing a lesson, and then novice teachers’ immediate revising and delivering the lesson again.” In the entire process which lasts from two to three days, a number of novice teachers observe and learn, and several teacher

researchers and master teachers guide these novice teachers from the beginning to the end. Master teachers provide timely feedback for possible improvement and explain why certain improvement is needed for novice teachers. Due to time constraints, this session is devoted only to the presentation of the "on-the-spot lesson improvement" by novice teachers, with a focus on how to learn from experts and peers in classroom settings.

Planned Activities & Working Format & Responsible Person

- 14:00–14:30** **The Origin, Value and Essentials of “On-the-spot Lesson Improvement”**
(SI Miao'er)
- 14:30–14:50** **A Novice Teacher’s Lesson Presentation**
(A novice teacher)
- 14:50–15:25** **On-the-site Interactive Discussion**
(Master teachers and Novice teachers)
- 15:25–15:45** **Demonstration Lesson Presented by a Master Teacher**
(A master teacher)
- 15:45–16:05** **Second Presentation of the Lesson by a Randomly Selected Novice Teacher**
(A randomly selected novice teacher)
- 16:05–16:30** **Master Teachers’ Interpretation and Comments on the Lesson Followed by a Q&A Session**
(Professor Kong Qiping, Professor Zhang Qinqiong etc. + on-site teachers)

TA6: Reform and Development of Mathematics Curriculum and Teaching for Ethnic Minorities in China

July 15, 14:00–16:30

Location: T116

Organiser: Chairman: Professor Song Naiqing (Southwest University)

Vice Chairman: Associate Professor Li Zhongru (Southwest University)

Members: Professor Zhang Huirong (Southwest University); Professor Zhang Tingyan (Southwest University); Professor Chen Ting (Southwest University); Associate Professor Yang Xinrong, (Southwest University) ;Associate Professor Peng Aihui (Southwest University); Associate Professor Pei Changgen (Southwest University)

Secretary: Assistant Professor Li Xinlian (Southwest University)

Description:

This session is organized by the mathematics education research group from Southwest University in China, leading by Professor Song Naiqing.

China is a country with 56 ethnic groups. Mathematics education for ethnic minorities is an important part of mathematics education in China. However, due to issues related to language and culture, etc, the mathematics education for ethnic minorities in China faces challenges as well as opportunities, which call for further investigation.

The purpose of this session is to present what have achieved and to examine the mathematics teaching and curriculum of ethnic minorities in China. This session is to promote and invite participation from scholars in different countries and regions to understand, pay attention to and collaboratively explore the problems of mathematics education for ethnic minorities, exchange the latest research results of mathematics education for ethnic minorities, and then to improve the research of mathematics education for ethnic minorities in China and beyond.

This session is organized according to the following six themes:

1. Development and prospects of mathematics education for ethnic minorities;
2. Improvement of mathematics classroom teaching for ethnic minorities ;
3. Development of school-based mathematics curriculum for ethnic minorities ;
4. Transformation of the students with learning difficulties for ethnic minorities ;
5. Development and application of mathematics culture for ethnic minorities;
6. Information technology and mathematics education for ethnic minorities.

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Planned Activities & Working Format & Responsible Person

- 14:00–16:00** **Three Presentations about the Mathematics Curriculum and Teaching Reform for Ethnic Minorities in China (40 Min for Each including Q & A)**
Presentations (Chen Ting, Peng Aihui, Pei Changgen, Zhang Tingyan)
- 16:00–16:30** **Demonstrate the Achievements of Mathematics Curriculum and Teaching Reform in Ethnic Minority Areas of China**
30 minutes videos (Li Zhongru, Zhang Huirong, Yang Xinrong, Li Xinlian)

TA7: The Chinese Characteristics of Normal Students Training on Primary School Mathematics

July 15, 14:00–16:30

Location: T523

Organiser: Jianyue Zhang, Xiaoli Liu, Shuhong Zhou, Zhigang Wang, Shuping Pu, Mingxiang Liu, Shien Zhao, etc.

Primary School Math Education Working Committee

Description:

The Normal Universities have gained a lot of rich experience. Our training purpose is “Consolidating mathematical foundation, Strengthening teaching skills, Emphasizing practical teaching and Promoting competence developing” and we have obtained significant results.

Planned Activities & Working Format & Responsible Person

- 14:00–14:10** **The Beginning of Primary School Mathematics Teacher Training**
VCR (Zhigang Wang)
- 14:10–14:40** **Introduction of Basic Information (Training Objectives, School System, Curriculum, Teaching Material)**
PPT (Mingxiang Liu, Shuping Pu)
- 14:40–15:30** **Introduction of Teaching Implementation**
PPT, VCR (Shuhong Zhou)
- 15:30–16:00** **Introduction of Teaching Achievements**
PPT, VCR (Xiaohui Liu)
- 16:00–16:30** **Interaction Time**
Question& Discussion (Zhigang Wang, Shuping Pu)

TA8: Mathematics Experiment: A Transformation of Mathematics Learning in Chinese Primary and Middle Schools

July 15, 14:00–16:30

Location: T225

Organiser: Linwei Dong^{1,2} (1Teaching and Learning Speciality Committee of Middle School Mathematics, the Chinese Society of Education, ²Institute of Educational Science of Jiangsu Province)

Description:

This thematic afternoon is organized by Prof. Linwei Dong, the Vice Chairman of the Teaching and Learning Specialty Committee of Middle School Mathematics, the Chinese Society of Education. Prof. Dong was a high school mathematics teacher for nearly 20 years and, after that, a teaching and research advisor for 15 years. He is now the Editor-in-Chief of Junior High School Mathematics Textbook (Jiangsu Edition) and the Director of the Education Science Planning Office of Jiangsu province.

Prof. Dong and his team started researching mathematics experiment since the early 1990s. Entering the 21st century, the team started to explore mathematics experiments both theoretically and practically. So far, they have proposed a theoretical framework, wrote operation manuals, designed various patterns for teaching mathematics experiments, and developed series of experimental tools. They have also launched empirical studies to investigate the effectiveness of mathematics experiments. These efforts together constitute a systematic action plan for mathematics experiments. Studies have shown that mathematics experiment helps make abstract mathematical knowledge more vivid and, thus, enables students to better learn abstract concepts and generalize rules through direct experience. Besides, in the process of learning

mathematics concepts and rules, students gain methodological insights into how to learn and how to think mathematically.

The thematic afternoon will show in details the background, significance, development, and achievements of mathematics experiments, and it will also demonstrate the research results of mathematics experiments through specific cases.

Planned Activities & Working Format & Responsible Person

- 14:00–14:30** **Mathematics Experiment: A Transformation of Mathematics Learning in Chinese Primary and Middle Schools**
Keynote speech (Prof. Linwei DONG)
- 14:30–15:00** **A Case Study of Mathematics Experiment: Understanding Mathematical Concepts**
Presentation (Qingsong GUO et al)
- 15:00–15:30** **A Case Study of Mathematics Experiment: Exploring Mathematical Rules**
Presentation (Aiping ZHANG et al)
- 15:30–16:00** **A Case Study of Mathematics Experiment: Application of Mathematics Knowledge**
Presentation (Weikun ZHAO et al.)
- 16:00–16:10** **Research on the Educational Effects of Mathematical Experiments**
Presentation (Prof. Ping YU)
- 16:10–16:20** **Research on the Psychological Effects of Mathematical Experiments**
Presentation (Prof. Dingliang TAN)
- 16:20–16:30** **Prospects for Research on Mathematical Experiments**
Presentation (Detong XU)

TA9: The Practice of Teaching Improvement from "Comprehending" to "Exploring"

July 15, 14:00–16:30

Location: T423

Organiser: Qingpu Experiment Research Institute

Aims:

It shows the mathematics class teaching and research activities with Chinese characteristics and is school-based.

Significance:

Show the New Class of Qingpu Experiment — The Practice of Teaching Improvement from "Comprehending" to "Exploring"; Show Qingpu Experiment — The paradigm of school-based research in teachers' action education, promoting progress in teacher's professional development.

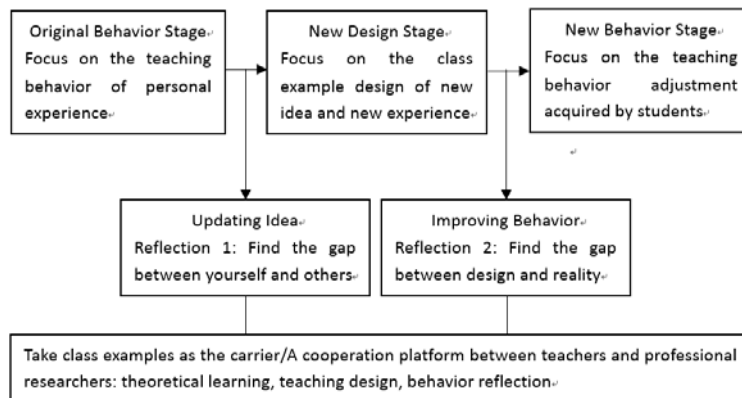
Activity Description:

The activities are generally divided into the following stages:

1. To establish a community of teachers, staff developers and professional researchers to cooperate in teaching improvement practice by lesson studies.
2. With the characteristics of "professional guidance" and "behaviour follow-up", carry out the teaching improvement practice of "three concerns and two reflections" which integrating theoretical learning, teaching design and behavioural reflection.

The "three concerns" consists of three stages: focus on the original behaviour stage of personal experience, the new design stage of the class example which is under the new concept, and the new behaviour stage acquired by students. "Two reflections" consists of two rounds of professionally-led cooperative reflections that connect the activities of the three stages: reflecting on the gap between existing behaviours and advanced concepts and experiences, and completing the leap of updating concepts; reflecting on the gap between ideal teaching design and students' actual acquisition, and completing the transfer from idea to behaviour. As shown in the picture.

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3. Find and sort out key behaviours of teaching improvement by means of teaching behavior analysis, and generate opinions and suggestions.

4. Expert review.

Planned Activities & Working Format & Responsible Person

14:00–14:05 **Explain: The Practice of Teaching Improvement from “Comprehending” to “Exploring”**

Mini Talk (Zhu Lianyun)

14:05–14:58 **Video Demonstration: “The Properties and Application of Linear Function” Class Teaching Section and Student Modelling Activity Section**

Video (Qian Haiyan, Xu Xiankai)

14:58–15:18 **Expert review**

Review (Wang Jie, Xu Binyan)

15:18–16:00 **Popularize Video demonstration**

Video (Yu Wei)

16:00–16:15 **Expert Review**

Review (Wang Hua)

16:15–16:30 **Interactive question and answer**

Interactive question and answer (Wang Jie, Xu Binyan, Wang Hua, Xiao Caifeng, Ban Liya etc.)

TA10: How is the Nature of ‘Teaching and Learning Mathematics’ Changed During the Pandemic in Shanghai?

July 15, 14:00–16:30

Location: T319

Organiser: Shanghai High School

Description:

All citizens in Shanghai were advised to self-isolate in a bid to control the spread of COVID-19, it was hypothesized that COVID-19 would impact on the teaching and learning mathematics in the 2020. This study reports secondary school students’ experiences for learning mathematics and teachers’ experiences for teaching mathematics during the COVID-19 pandemic era. 264 students completed a survey about the ways they have used to support their learning in mathematics. This study also collected data from 332 mathematics teachers in Shanghai. Semi-structured interviews were used to collect views of what these teachers thought about the COVID-19 effects on the mathematics performance of students.

Planned Activities & Working Format & Responsible Person

14:00–14:40 **Students’ Individual Talks**

Ted Talk

14:40–14:50 **Video watching**

(Ma Feng)

14:50–15:30 **Teachers’ Report on the Survey**

Lecture

15:30–16:10 **Students' Report on the Survey**

Lecture

16:10–16:30 **Q&A**

Interaction

TA11: Chinese Mathematics Curriculum, Teaching and College Entrance Examination

July 15, 14:00–16:30

Location: T316

Organiser: Mathematical Education Committee of Chinese Mathematical Society

Organizers:

The Chinese Mathematical Society was established in July 1935. The Mathematical Education Committee of Chinese Mathematical Society is committed to the development of mathematics education in primary, secondary and university schools. In 1936, the Chinese Mathematical Society founded and published the Journal of Mathematics (《数学通报》), which has published many important mathematics education research paper mainly focused on the mathematical education practice in primary and secondary schools.

This thematic afternoon is a collaboration among researchers from Mathematical Education Committee of Chinese Mathematical Society. Academic consultants (professor Ningzhong Shi and professor Junyi Guo) are responsible for the design and guidance of the overall activities. Yufeng Guo is responsible for the mathematics curriculum and teaching. Zizhao Ren is responsible for the activities about Mathematics College Entrance Examination.

Aims and underlying ideas

As the main research fields of mathematics education, curriculum, teaching and evaluation have attracted the attention of mathematics education researchers and mathematics teachers all over the world. This activity aims to show the main features of Chinese mathematics education in these three research fields which are Chinese mathematics curriculum (or Syllabus), teaching and college entrance Examination (Chinese Gaokao). About Chinese mathematics curriculum, historical evolution of mathematics curriculum standards, the latest high school mathematics curriculum standards and supporting textbooks will be introduced. About College Entrance Examination, the system and proposition ideas will be introduced. This activity can help people understand the reality and characteristics of Chinese mathematics education better.

Planned Activities & Working Format & Responsible Person

14:00–14:30 **Display of Mathematical Curriculum Standards and Mathematical Materials**

PowerPoint, picture and text showing (Yufeng Guo, Li Zhongru)

14:30–15:00 **Display of Characteristic Math Class and Students' Works**

PowerPoint, pictures, video and paper (Fengwen Yang)

15:00–16:00
1. Introduce the Basic Situation of the College Entrance Examination
2. The Mathematical Knowledge and Ability to Be Examined in the College Entrance Examination
3. The Structure of the Math Papers for the College Entrance Examination
4. Chinese Mathematical Tasks of College Entrance Examination

PowerPoint, pictures, video and paper (Zizhao Ren, Ji Guoxing, Song Chunwei)

16:00–16:30 **Q&A**

(Organizers and participants)

TA12: Mathematical Modeling Inside and Outside Classrooms

July 15, 14:00–16:30

Location: T323

Organiser: Alfred Cheung (NeoUnion ESC Organization); Solomon Garfunkel (COMAP)

Activity description:

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- (1) Reports and presentation: Outstanding Award and Meritorious teams will be invited to present their solution papers to the audience. They will also share their experience in IMMC and other mathematical modelling activities.
- (2) Demonstrations: Other participating teachers and students will demonstrate their projects on mathematical modelling and its integration with STEM including publications and posters.
- (3) Discussions: Local Chinese school teachers will be invited to present their pedagogy cases and research projects to the audience.

Planned Activities & Working Format & Responsible Person

- 14:00–15:15** **Reports by IMMC Awarded Teams**
Speeches (Alfred Cheung, Sol Garfunkel)
- 15:15–16:00** **Demonstration by Teachers/Students**
Posters and presentations (Alfred Cheung)
- 16:00–16:30** **Discussions**
Q&A (Alfred Cheung, Zhonghua Qiao)

TA13: Forum on Standards of School Mathematics Curriculum in China Mainland

July 15, 14:00–16:30

Location: A

Organiser: Revision Group on General Senior High School Curriculum Standards (2017, 2020), Full-time Obligatory Education Mathematics Curriculum Standards (2021, On-going)

Aim:

- (1) Highlighting and Explanation the Big Ideas of General Senior High School Curriculum Standards (2017, 2020);
- (2) Introduction and Discussing the Revision of Full-time Obligatory Education Mathematics Curriculum Standards (2021, On-going).

Organizer:

- (1) Shi, Ning-zhong, Co-chair of Revision Group on General Senior High School Curriculum Standards (2017, 2020); Co-chair of Revision Group on Full-time Obligatory Education Mathematics Curriculum Standards (2021, On-going); The former president of Northeast China Normal University.
- (2) Wang, Shang-zhi, Co-chair of Revision Group on General Senior High School Curriculum Standards (2017, 2020), Professor of Capital Normal University.
- (3) Wang, Chang-ping, key member of Revision Group on General Senior High School Curriculum Standards (2017, 2020), key member of Revision Group on Full-time Obligatory Education Mathematics Curriculum Standards (2021, On-going); The president of Fujian Normal University.
- (4) Cao, Yi-ming, Co-chair of Revision Group on Full-time Obligatory Education Mathematics Curriculum Standards (2021, On-going), professor of Beijing Normal University.
- (5) Sun, xiao-tian, key member of Revision Group on Full-time Obligatory Education Mathematics Curriculum Standards (2021, On-going), professor of Minzu University of China.

Planned Activities & Working Format & Responsible Person

Chair: Cao, Yi-ming

- 14:00–14:50** **The Big Ideas of Revision on Standards of School Mathematics Curriculum**
(Shi, Ning-Zhong)
- 14:50–15:20** **Design on Subject Core Competencies and Goals**
(Sun, Xiao-Tian)
- 15:20–15:50** **Introduction on Elective Courses for Senior High School**
(Wang, Chang-Ping)
- 15:50–16:20** **Core Competence-based Assessment and Examination Development**
(Wang, Shang-Zhi)
- 16:20–16:30** **Discussion and Summary**