The room went pitch black as the ceremony commenced, with a traditional Korean five-drum dance, Ogomu, performed by the Kim Joong Ja Dance Team. As the applause died down, the Chair of the International Program Committee, Cho Sung Je was invited up to give the first opening speech, in which he provided a warm welcome to all ICMI-12 attendees. He then passed attention to the big screen of President Lee Myung Bak, though he could not attend, who delivered a quick albeit meaningful welcoming message. Citing the necessity of mathematics of the world, President Lee honored ICMI, claiming, “mathematicians are the property of national propensity.”

Lee Joo Ho, the Minister of Education, Science and Technology, then gave the next opening speech, emphasizing the changes that the Korean government is soon to implement in regards to mathematical education. He then passed the stage onto the President of IMU, Ingrid Daubechies, who expressed her elation to be of service and support for the ICMI, while saluting all its members and participants involved. The floor was then given to the president of ICMI, Bill Barton, who further stressed the importance of face-to-face communication among all mathematicians and mathematics educators alike, urging all attendees to get involved.

The award ceremony then took place, with Carolyn Kieran of the ICMI Awards Committee taking the stage. She honored the ICMI award recipients, over the past four years, with the Hans Freudenthal Medal and the Felix-Klein Medal for Lifetime Achievement. The 2009 Hans Freudenthal Award went to Yves Chevallard of the Association pour la Recherche en Didactique des Mathématiques (ARDM); the 2009 Felix-Klein Award went to Emerita Gilah C. Leder of La Trobe University; the 2011 Hans Freudenthal Award went to Luis Radford of Université Laurentienne; and the 2011 Felix-Klein Award went to Alan Schoenfeld of University of California, Berkeley. Each of the said recipients personally expressed their gratitude for the honor bestowed upon them, with Schoenfeld concluding the acceptance speeches with a gratifying final comment, in that he “couldn’t think of a better birthday present!”

The opening ceremony ended with a series of operatic performances done by a boy’s quartet called Viva Voce, finishing off with traditional Korean folk song, “Arirang.”
Key Speakers of Today

Bernard R. Hodgson

Bernard R. Hodgson is a professor at Laval University, specializing in the history of mathematics and its didactics. He has a PhD in mathematics education and has taught at the University of Laval since 1985. Hodgson has contributed to the field with his research on the history of mathematics education and its didactics. He is known for his work on curriculum development and the use of historical examples in teaching mathematics. Hodgson has also been involved in the development of educational software and has authored several books and articles on the subject.

Zalan Usiskin

Zalan Usiskin is a renowned mathematics educator, recognized for his contributions to the field of educational psychology and the theory of mathematics education. He is a pioneer in the development of research-based teaching strategies and has been involved in the creation and evaluation of mathematics curricula. Usiskin has a strong background in the study of cognitive development and has worked extensively on the role of visualization in teaching mathematics. His research has focused on the development of educational software and the use of technology in mathematics education. Usiskin is known for his ability to bridge the gap between research and practice, making his work highly influential in the field.

Gilah Leder

Gilah Leder is a distinguished scholar in the field of mathematics education, with a focus on the social and cultural aspects of learning mathematics. She is a professor at the Hebrew University in Jerusalem and has made significant contributions to the understanding of the role of gender in mathematics education. Leder's research has explored the experiences of women in mathematics, the social construction of mathematical knowledge, and the role of history in teaching mathematics. She is recognized for her ability to integrate cultural, social, and historical perspectives into her work, providing a comprehensive understanding of the complex issues surrounding mathematics education.
As a part of the program directed towards children and general public, the LOC of ICME-12 will arrange a mathematical carnival during the conference days of ICME-12. We hope that local families, teachers and families of participants will come to experience these fun mathematical activities. The carnival will be located at the conference center. Each booth will have a different theme, and the booths will be organized as a journey through different worlds of mathematics.

- **Exhibition of Mathematics Manipulative and Art**
  Mathematics Manipulative and Art, developed and designed by Korean mathematics teachers and members of Korean Origami Association etc., will be exhibited.

- **Student Workshops**
  The purpose of student workshops is to stimulate curiosity and to enhance positive thinking toward mathematics by experiencing basic principles of mathematics. The activities will be organized so that some students, teachers or a general public can volunteer to engage directly in an activity, while others participate as audience.

- **Mathematical Plaza**
  Each mathematics classroom of Tokyo, Hong Kong, Shanghai, and Armidale will be televised real-time on Tue, Wed, and Sat respectively. Before televising, a representative from each city will introduce the classroom for 10 minutes in front of the audience and after a 50 min class; s/he will answer the questions from the audience for 30 minutes.

- **Non-Commercial Booths**
  The LOC will provide 50 booths for non-commercial exhibitors, some of which are taken by ICMI, 5 NP teams (USA, India, Singapore, Korea, Spanish Cultural Heritage), 3 Asian countries/Regions (China, Japan, ASEAN) and 2 Asian Associations (EARCOME-6 and APEC Lesson Study). The LOC also selects the rest of the 14 exhibitors based on the evaluation of the application form.

- **Commercial Booths**
  The LOC invites 37 commercial companies who would like to display their products at the Congress.

Late afternoons and evenings will target older children and adults. During this time we will have mathematicians talk about math, tailored for a general audience. The LOC invites teachers from all countries to contribute to and participate in the carnival activities. These are the activities that have been tried out with students in class, at mathematics fairs or other events aimed at engaging children in active participation. In this way, we will also have a chance to show how a variety of novel activities might be used as a tool for learning mathematics while having fun!

- **Location: Hall D1**

### Timetable

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<th>Time</th>
<th>July 10 (Mon)</th>
<th>July 11 (Tue)</th>
<th>July 12 (Wed)</th>
<th>July 13 (Thu)</th>
<th>July 14 (Sat)</th>
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The 12th International Congress on Mathematical Education

Tuesday, July 10, 2012

Mathematics Education All Around the World

Curriculum Revision

The Chinese government launched the curriculum reform of basic education in 1999, which was the eighth basic educational curriculum reform since 1949 when the People’s Republic of China was founded. On the basis of theoretical study and practical exploration, the Mathematics Curriculum Standards of Full-time Compulsory Education (experimental version) and the Mathematics Curriculum Standards of High School (experimental version) were promulgated in 2001 and 2003, respectively.

Mathematics Curriculum Standards of Full-time Compulsory Education (experimental version) published and implemented in 2001 has made great changes in the content according to the mathematics curriculum during the period of compulsory education from grades 1 to 9. Mathematics curriculum contents are divided into four fields: “Number and Algebra”, “Space and Graph”, “Statistics and Probability” and “Practice and integrative Application”. Mathematics Curriculum Standards of High School (experimental version) (2003) highlights selectivity. Mathematics is no longer divided into traditional areas such as “geometry”, “algebra”, but directly formed by modules. These modules are further divided into two parts: compulsory courses and optional courses. Among them, compulsory courses contain five modules, and optional courses are divided into four series, each formed by several modules.

The curriculum revision takes place about every ten years. Since 1949, now we have the eighth basic educational curriculum reform. The basic education in China has made satisfactory achievements in the long-term development, and has accumulated much useful experience in the areas of mathematics curriculum and instruction. While developing the mathematics curriculum, some problems which are exposed in mathematics curriculum need to be solved.

A number of prominent problems to be dealt with include the following:

- The educational value of mathematics curriculum was ignored. Curriculum goals, content and evaluation method paid more attention to mastering basic knowledge and skills, and neglected comprehensive quality of students.
- The cultivation of the awareness of innovation in students was ignored, while too much emphasis was put on mathematics drills, and understanding its nature. The experience about process of formation of mathematical knowledge was also not adequate.

Gifted Education

Gifted education in mathematics plays an important role in education in China. In some schools special classes for gifted students in mathematics have been set up. Special curriculums have been developed and individual teaching would be organized in order to unearth the mathematics talent and bring up students’ mathematics perspective, profound understanding etc. The students also focus on studying international mathematics Olympiad competition. Through the gifted education students could experience how to cooperate each other and how to respect each other.

Regarding the gifted education, schools have their own enrollment criterion, one of which is a paper and pencil test. Many parents believe that their children may be gifted and want to send them in such gifted classes. So in order to prepare such test (enrollment examination) students must visit special private education and practice to solve many difficult mathematics problems. But most of them may not have potential in mathematics, or they have no interesting in mathematics learning or thinking. Through the hard training students maybe lost their normal interesting in learning mathematics, even lose the mathematics.

Many Chinese parents want to their children to be famous in the future or to get the best status. So they pay more attention to basic education. The parents believe their children can reach the target when they achieve the best education (or gifted education).

The national “long term education development planning” (2010-2020) stresses that education should bring up initiative, creative talent in a person; high quality education resources should be reinforced. The policy explains indirectly how important it is to carry out gifted education.

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U.S. National Presentations

* Location: Hall E5

Overview of Math Ed in the U.S.: Curriculum Reform

Tuesday, July 10: 15:00~16:30

1. Mathematics Education in the United States 2012 – Katherine Halvorsen, Smith College
2. Evolution and Revolution: From the NCTM Standards to the Common Core State Standards in the U.S. – Michael Shaughnessy, Immediate Past President of the National Council of Teachers of Mathematics (NCTM)
3. Research Perspectives on Mathematics Standards Reform in the U.S. – Mary Kay Stein, University of Pittsburgh

Teaching Math in the U.S.

Tuesday, July 10: 17:00~18:30

1. The “Mathematics Studio”: Sustainable School-Based Professional Learning – Linda Foreman, President of the Teachers Development Group
2. Challenges of Knowing Mathematics for Teaching in the United States – Deborah Ball, University of Michigan