

## SCHEDULE FOR THE BRIDGES SEOUL CONFERENCE

SESSION	SLOT	TIME	TYPE	AUTHORS AND TITLES
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**THURSDAY AUGUST 14, 2014**

**REGISTRATION: Gwacheon National Science Museum (GNSM) August 13, 2014 2 PM - 6 PM  
and August 14~18, 2014 9 AM - 6 PM**

Eoullim Hall				Morning 9:30am - 12:00 noon	SESSION 1	Chair: Carlo H. Séquin
14 AM 1	1	9:30		<b>Bridges Seoul 2014 Organizing Committee</b> <i>Welcoming Remarks (No registration during this time)</i>		
14 AM 1	2	10:00	PLEN	<b>Minhyong Kim</b> <i>Arithmetic Symmetry</i>		
14 AM 1	3	11:00	PLEN	<b>Carlo H. Séquin and Michelle Galembo</b> <i>LEGO-Knots and Tria-Tubes</i>		

**2014 Art Exhibition Opening & Reception 12:00pm - 12:30pm**

Creation Hall				Midday 2:30pm – 4:00pm	SESSION 2	Chair: Kenneth Brecher
14 PM 2	1	2:30	REG	<b>Craig Kaplan</b> <i>The Design of a Reconfigurable Maze</i>		
14 PM 2	2	3:00	REG	<b>Chamberlain Fong</b> <i>An Indoor Alternative to Stereographic Spherical Panoramas</i>		
14 PM 2	3	3:30	REG	<b>Kenneth Brecher</b> <i>Top-ology: A Torque about Tops</i>		

Lecture Room VI, Education Building				Midday 2:30pm – 4:00pm	SESSION 3	Chair: Kazmier Maslanka
14 PM 3	1	2:30	SHRT	<b>Susan Happersett</b> <i>Mathematical Sequences and Artist's Books</i>		
14 PM 3	2	2:45	SHRT	<b>Jean Constant</b> <i>Random processes and visual perception</i>		
14 PM 3	3	3:00	SHRT	<b>John Hiigli</b> <i>Homages to Geraldo de Barross</i>		
14 PM 3	4	3:15	SHRT	<b>Gizem Karaali</b> <i>The Genius as a Characterization of the Creative Spirit in Mathematics and the Arts</i>		
14 PM 3	5	3:30	SHRT	<b>Gabriele Gelatti</b> <i>On Colouring Sequences of Digital Roots</i>		
14 PM 3	6	3:45	SHRT	<b>Kazmier Maslanka</b> <i>Korean Seon (Zen) and Mathematical Visual Poetry</i>		

Lecture Room V, Education Building				Midday 2:30pm – 4:00pm	SESSION 4	Workshop
14PM 4	1	2:30	WORK	<b>Kazunori Horibe, Bih-Yaw Jin and Chia-Chin Tsoo</b> <i>From Sangaku Problems to Mathematical Beading: A Hands-on Workshop ...</i>		

**Coffee Break 4:00-4:30**

Creation Hall				Afternoon 4:30pm – 6:00pm	SESSION 5	Chair: Rinus Roelofs
14 PM 5	1	4:30	REG	<b>Glenn Laigo, Haftamu Menker Gebreyohannes and Fahad Mohammed Humaid Al Khamisi</b> <i>Symmetry Groups of Islamic Patterns at the Sultan Qaboos Grand Mosque</i>		
14 PM 5	2	5:00	REG	<b>Dirk Huylebrouck</b> <i>The Meta-golden Ratio Chi</i>		
14 PM 5	3	5:30	REG	<b>Rinus Roelofs</b> <i>Elevations and Stellations</i>		

Research Room, Basic Science Hall				Afternoon 4:30pm – 6:00pm	SESSION 6	Chair: Kristof Fenyvesi
14 PM 6	1	4:30	REG	<b>Dallas Clement</b> <i>Math + Art at the Winnipeg Art Gallery</i>		
14 PM 6	2	5:00	REG	<b>Hidetoshi Fukagawa and Kazunori Horibe</b> <i>Sangaku-Japanese Mathematics and Art in 18th, 19th and 20th Centuries</i>		
14 PM 6	3	5:30	REG	<b>Kristof Fenyvesi, Natalija Budinski and Zsolt LAVICZA</b> <i>Two Solutions to An Unsolvable Problem: Connecting Origami and GeoGebra ...</i>		

Lecture Room VI, Education Building				Afternoon 4:30pm – 6:00pm	SESSION 7	Chair: Mara Alagic
14 PM 7	1	4:30	SHRT	<b>Cindy Lawrence</b> <i>Engaging Groups with Large-Scale Construction Events</i>		
14 PM 7	2	4:45	SHRT	<b>John Sullivan</b> <i>Nonspherical Bubble Clusters</i>		
14 PM 7	3	5:00	SHRT	<b>Daeun Cheong, Jaewon Cheong, Mi Ju Kim, Jae Hee Park , and Jeong Mi Park</b> <i>The Entropy of K-Pop songs</i>		
14 PM 7	4	5:15	SHRT	<b>Helen Prochazka, Maurice Murphy and Adrian Jacobson</b> <i>Adding Emotion to a Mathematics Book with Pop Song Poetry</i>		
14 PM 7	5	5:30	SHRT	<b>Terrence Richard Blackman and John Belcher</b> <i>Rhythm Similarity and Symbolic Dynamics</i>		
14 PM 7	6	5:45	SHRT	<b>Mara Alagic</b> Preservice Elementary Teachers: Creative Thinking, Pedagogy and MathArt Projects		

Lecture Room V, Education Building				Afternoon 4:30pm – 6:00pm	SESSION 8	Workshop
14 PM 8	1	4:30	WORK	<b>Diana Cheng and Tetyana Berezovski</b> <i>The Numbers Behind the Death Spiral</i>		

**Gwacheon National Science Museum Welcome Dinner**  
**Imagination Hall**  
**7:00-9:00**

**FRIDAY AUGUST 15, 2014**

<b>Euoulim Hall</b>				<b>Morning 9:30am - 12:30 noon</b>	<b>SESSION 9</b>	<b>Chair: Gary Greenfield</b>
15 AM 9	1	9:30	PLEN	<b>James Mai</b> <i>Juan Gris' Color Symmetries</i>		
15 AM 9	2	10:30	PLEN	<b>Tiffany Inglis</b> <i>Constructing Drawings of Impossible Figures with Axonometric Blocks and ...</i>		
15 AM 9	3	11:30	PLEN	<b>Thomas F. Banchoff</b> <i>Salvador Dali and the Fourth Dimension</i>		

**Lunch 12:30pm - 2:30pm**

<b>Imagination Hall</b>				<b>Midday 2:30pm – 4:00pm</b>	<b>SESSION 10</b>	<b>Chair: Tom Verhoeff</b>
15 PM 10	1	2:30	REG	<b>Melle Stoel</b> <i>Closed Loops with Antiprisms</i>		
15 PM 10	2	3:00	REG	<b>Taneli Luotoniemi</b> <i>The Kinochoron: A Manipulable Wire Model of the 16-cell</i>		
15 PM 10	3	3:30	REG	<b>Tom Verhoeff and Koos Verhoeff</b> <i>Lobke, and Other Constructions from Conical Segments</i>		

<b>Creation Hall</b>				<b>Midday 2:30pm – 4:00pm</b>	<b>SESSION 11</b>	<b>Chair: Chern Chuang</b>
15 PM 11	1	2:30	REG	<b>Abdalla G. M. Ahmed</b> <i>Modular Duotone Weaving Design</i>		
15 PM 11	2	3:00	REG	<b>Nithikul Nimkulrat and Janette Matthews</b> <i>From Mathematical Diagrams to Knotted Textiles</i>		
15 PM 11	3	3:30	REG	<b>Chern Chuang and Bih-Yaw Jin</b> <i>Torus Knots with Polygonal Faces</i>		

Lecture Room VI, Education Building				Midday 2:30pm – 4:00pm	SESSION 12	Chair: Eve Torrence
15 PM 12	1	2:30	SHRT	<b>Kokichi Sugihara</b> <i>Right-Angle Preference in Impossible Objects and Impossible Motions</i>		
15 PM 12	2	2:45	SHRT	<b>Daniela Velichová</b> <i>Forms from Minkowski Triples of Circles</i>		
15 PM 12	3	3:00	SHRT	<b>Francesco De Comit�</b> <i>Cardioidal Variations</i>		
15 PM 12	4	3:15	SHRT	<b>Carlo H. S�quin</b> <i>Physically Correct Rendering of Pacioli's Rhombicuboctahedron</i>		
15 PM 12	5	3:30	SHRT	<b>Robert Bosch</b> <i>Figurative Mosaics from Flexible Truchet Tiles</i>		
15 PM 12	6	3:45	SHRT	<b>Eve Torrence</b> <i>Making Sunshine: A First Geometric Sculpture</i>		

Lecture Room V, Education Building				Midday 2:00pm – 3:30pm	SESSION 13	Workshop
15 PM 13	1	2:30	WORK	<b>Andrea Hawksley</b> <i>A Binary Dance Workshop</i>		

**Coffee Break 4:00-4:30**

Imagination Hall				Afternoon 4:30pm – 6:00pm	SESSION 14	Chair: Godfried Toussaint
15 PM 14	1	4:30	REG	<b>Reza Sarhangi</b> <i>Decorating Regular Polyhedra Using Historical Interlocking Star Polygonal Patterns</i>		
15 PM 14	2	5:00	REG	<b>Peter Boothe and Jonathan Langke</b> <i>People and Computers Agree on the Complexity of Small Art</i>		
15 PM 14	3	5:30	REG	<b>Eva Toussaint and Godfried Toussaint</b> <i>What is a Pattern?</i>		

Creation Hall				Afternoon 4:30pm – 6:00pm	SESSION 15	Chair: Paul Gailiunas
15 PM 15	1	4:30	REG	<b>Kelly Delp</b> <i>Stripey Squares</i>		
15 PM 15	2	5:00	REG	<b>David Mitchell</b> <i>Lattice Labyrinth Tessellations</i>		
15 PM 15	3	5:30	REG	<b>Paul Gailiunas</b> <i>Recursive Rosettes</i>		

Lecture Room VI, Education Building				Afternoon 4:30pm – 6:00pm	SESSION 16	Chair: Robert Bosch
15 PM 16	1	4:30	SHRT	<b>Susan Goldstine</b> <i>Capturing Eight-Color Double-Torus Maps</i>		
15 PM 16	2	4:45	SHRT	<b>Judy Holdener and Marie Snipes</b> <i>Sources of Flow as Sources of Symmetry: Divergence Patterns of Sinusoidal Vector Fields</i>		
15 PM 16	3	5:00	SHRT	<b>Akio Hizume, Takamichi Sushida and Yoshikazu Yamagishi</b> <i>Voronoi Phyllotaxis Tiling on Fermat Spiral</i>		
15 PM 16	4	5:15	SHRT	<b>Mingjang Chen</b> <i>An Introduction to Leaping Iterated Function Systems</i>		
15 PM 16	5	5:30	SHRT	<b>Mayer Schwartz</b> <i>Generating a "3D" Image from One Continuous 2D Curve</i>		
15 PM 16	6	5:45	SHRT	<b>Robert Bosch and Julia Olivieri</b> <i>Game-of-Life Mosaics</i>		

Lecture Room V, Education Building				Afternoon 4:30pm – 6:00pm	SESSION 17	Workshop
15 PM 17	1	4:30	WORK	<b>Takaaki Sonoda and Minori Yamazaki</b> <i>Universal Magic Cube: A Hands-on Workshop for Closed Cubic Kaleidoscopes ...</i>		

**Bridges Public Lecture**  
**Eoullim Hall**  
**7:30-9:00**

*Sponsored by Mathematical Sciences Research Institute (MSRI)*



**Noam D. Elkies**

*Department of Mathematics  
Harvard University, USA*

**Eoullim Hall, Gwacheon National Science Museum**

*Friday, August 15, 2014 7:30-9:00 PM*

**SATURDAY AUGUST 16, 2014**

***Bridges Seoul Family Day***

Chair: Kristóf Fenyvesi

<http://www.familyday.hu/>

<b>Euollim Hall</b>				<b>Morning 10:30am - 12:30 noon</b>
16 AM FD	1	10:30	SHOW	<b>Robert Bosch</b> <i>Bridges 2014 Short Movie Festival I</i>
16 AM FD	2	11:30	SHOW	<b>Tim and Tanya Chartier</b> <i>Mime-Matics I</i>

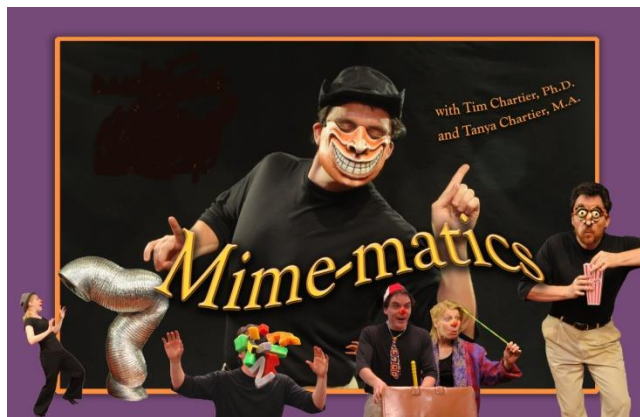
**Lunch 12:30pm - 2:00pm**

<b>Euollim Hall</b>				<b>Afternoon 2:00pm - 8:00pm</b>
16 PM FD	1	2:00	SHOW	<b>Karl Schaffer, Erik Stern, and Saki (with Korean translation)</b> <i>Math and Dance I</i>
16 PM FD	2	3:30	SHOW	<b>Robert Bosch (with Korean translation)</b> <i>Bridges 2014 Short Movie Festival II</i>
16 PM FD	3	5:00	SHOW	<b>Tim and Tanya Chartier (with Korean translation)</b> <i>Mime-Matics II</i>
16 PM FD	4	6:30	SHOW	<b>Mike Naylor</b> <i>Poetry and Music Night</i>



## Dance Theater: The Signs of Discovery

**What do mathematics and dance have in common?** For years Karl Schaffer and Erik Stern have been revealing the surprising connections through highly physical, engaging choreography peppered with their unique brand of humor and entertaining audience interactions. From the stately "Shadowed Flight" to magical play with paper to Chinese legends of flight told with giant tangrams, the Dr. Schaffer and Mr. Stern Dance Ensemble addresses symmetry, number sense, the history of ideas and, ultimately, how we think.



## Mime-Matics

**Tim and Tanya Chartier's mime** combines masks, puppetry, and classical mime illusions into a distinctive style that they have performed throughout the United States and in national and international settings.

The Chartiers have trained at Le Centre du Silence mime school, the Dell'Arte School of International Physical Theater and with the world-renowned mime artist Marcel Marceau.

## Bridges 2014 Short Movie Festival

The 5th Annual Bridges Short Movie Festival will include a variety of juried and curated videos and short films. The program will include movies, videos and animations that have been created for educational, corporate and artistic purposes, and will provide another opportunity for you to experience innovative and integrative techniques in the fields of mathematics and art.



## SUNDAY August 17, 2014

Euollim Hall				Morning 10:30am - 12:30 noon	SESSION 18	Chair: Craig Kaplan
17 AM 18	1	10:30	PLEN	<b>Karl Schaffer, Erik Stern, and Saki</b> <i>Dance Theater: The Signs of Discovery</i>		
17 AM 18	2	11:30	PLEN	<b>Harri Varpanen</b> <i>Toss and Spin Juggling State Graphs</i>		

### Lunch 12:30pm - 2:30pm

Imagination Hall				Midday 2:30pm – 4:00pm	SESSION 19	Chair: Francisco Gomez
17 PM 19	1	2:30	REG	<b>Donald Spector</b> <i>Three Mathematical Views of "In C"</i>		
17 PM 19	2	3:00	REG	<b>Karl Schaffer</b> <i>Dancing Deformations</i>		
17 PM 19	3	3:30	REG	<b>Francisco Gomez, Jose Miguel Diaz-Baniez, Emilia Gomez and Joaquin Mora</b> <i>Flamenco Music and its Computational Study</i>		

Creation Hall				Midday 2:30pm – 4:00pm	SESSION 20	Chair: Douglas Dunham
17 PM 20	1	2:30	REG	<b>Robert Fathauer</b> <i>Some Hyperbolic Fractal Tilings</i>		
17 PM 20	2	3:00	REG	<b>Stanley Spencer</b> <i>Creating Self Similar Tiling Patterns and Fractals using ...</i>		
17 PM 20	3	3:30	REG	<b>Douglas Dunham and John Shier</b> <i>The Art of Random Fractals</i>		

Main Lecture Room, Education Building				Midday 2:30pm – 4:00pm	SESSION 21	Chair: Douglas Burkholder
17 PM 21	1	2:30	SHRT	<b>Gary Greenfield</b> <i>Target Curves for Pick-up, Carry, and Drop Mobile Automata</i>		
17 PM 21	2	2:45	SHRT	<b>Bruce Torrence</b> <i>Seeing a Fundamental Theorem</i>		

Main Lecture Room, Education Building				Midday 2:30pm – 4:00pm	SESSION 21	Chair: Douglas Burkholder
17 PM 21	3	3:00	SHRT	<b>Jito Vanualailai</b> <i>Emergent Spirograph-like Patterns from Artificial Swarming</i>		
17 PM 21	4	3:15	SHRT	<b>Joshua Holden and Lana Holden</b> <i>Hyperbolic Tilings with Truly Hyperbolic Crochet Motifs</i>		
17 PM 21	5	3:30	SHRT	<b>Loe Feijs, Jun Hu, Liu Jihong and Marina Toeters</b> <i>Design of a nature-like fractal celebrating warp knitting</i>		
17 PM 21	6	3:45	SHRT	<b>Douglas Burkholder</b> <i>Visualizing Affine Regular, Area-Preserving Decompositions of Irregular 3D Pentagons ...</i>		

Research Room, Basic Science Hall				Midday 2:30pm – 4:00pm	SESSION 22	Workshop
17 PM 22	1	2:30	WORK	<b>Tamir Ashman</b> <i>A Playful Geometry Workshop: Creating 3D Polyhedral Structures from Innovative 2D ...</i>		

**Coffee Break 4:00-4:30**

Imagination Hall				Afternoon 4:30pm – 6:00pm	SESSION 23	Chair: Craig Kaplan
17 PM 23	1	4:30	REG	<b>Geoffrey Irving &amp; Henry Segerman</b> <i>Developing Fractal Curves</i>		
17 PM 23	2	5:00	REG	<b>Dorien Herremans &amp; Kenneth Sørensen</b> <i>Composing First Species Counterpoint with a Variable...</i>		
17 PM 23	3	5:30	REG	<b>Susan Goldstine &amp; Ellie Baker</b> <i>Building a Better Bracelet: Wallpaper Patterns in Bead Crochet</i>		

Creation Hall				Afternoon 4:30pm – 6:00pm	SESSION 24	Chair: Carol Bier
17 PM 24	1	4:30	SHRT	<b>Ma. Louise Antonette De Las Penas, Agnes Garciano and Debbie Marie Verzosa</b> <i>Color Symmetry in the Hand Woven Mats of the Jama Mapun</i>		
17 PM 24	2	4:45	SHRT	<b>David Reimann</b> <i>Art and Symmetry of Scottish Carved Stone Balls</i>		
17 PM 24	3	5:00	SHRT	<b>Mike Naylor</b> <i>Java Runes</i>		
17 PM 24	4	5:15	SHRT	<b>Konstantin Poelke, Zoi Tokoutsis and Konrad Polthier</b>		

Creation Hall				Afternoon 4:30pm – 6:00pm	SESSION 24	Chair: Carol Bier
				<i>Complex Polynomial Mandalas and their Symmetries</i>		
17 PM 24	5	5:30	SHRT	<b>Vladimir Bulatov</b>	<i>Inversive Kaleidoscopes and their Visualization</i>	
17 PM 24	6	5:45	SHRT	<b>Carol Bier</b>	<i>Sinan's Screens: Networks of Intersecting Polygons in Ottoman Architecture</i>	

Main Lecture Room, Education Building				Afternoon 4:30pm – 6:00pm	SESSION 25	Chair: Darrah Chavey
17 PM 25	1	4:30	SHRT	<b>Richard Hassell</b>	<i>A Plane-Filling Curve Using Ammann A5 Tiles</i>	
17 PM 25	2	4:45	SHRT	<b>Chirag Mehta</b>	<i>Non-periodic Tiles Based on Ammann Set A2 Tiles</i>	
17 PM 25	3	5:00	SHRT	<b>Hartmut F. W. Höft</b>	<i>Drawing with Elliptical Arc</i>	
17 PM 25	4	5:15	SHRT	<b>David Chappell</b>	<i>Taking a Point for a Walk: Pattern Formation with Self-Interacting Curves</i>	
17 PM 25	5	5:30	SHRT	<b>Harrie Welles</b>	<i>Fractional Beauty</i>	
17 PM 25	6	5:45	SHRT	<b>Darrah Chavey</b>	<i>Three Color "2 : 1 : 1" Designs</i>	

Research Room, Basic Science Hall				Afternoon 4:30pm – 6:00pm	SESSION 26	Workshop
17 PM 26	1	4:30	WORK	<b>Karl Schaffer and Erik Stern</b>	<i>Loopy Dances</i>	

**Dinner for Korean Day**  
**Rose Hill, Seoul Land**  
**7:30-9:00**  
**(Bus departs at 19:00 in front of Eoullim Hall entrance)**

**MONDAY August 18, 2014**

<b>Euoulim Hall</b>				<b>Morning 9:30am - 12:30 noon</b>	<b>SESSION 27</b>	<b>Chair: George Hart</b>
18 AM 27	1	9:30	PLEN	<b>Cédric Villani</b> <i>The Beautiful Minds</i>		
18 AM 27	2	10:30	PLEN	<b>Hinke M. Osinga and Bernd Krauskopf</b> <i>How to Crochet a Space-Filling Pancake: the Math, the Art and What Next</i>		
18 AM 27	3	11:30	PLEN	<b>Frank Morgan</b> <i>Bubbles and Tilings: Art and Mathematics</i>		

**Lunch 12:30pm - 2:30pm**

<b>Imagination Hall</b>				<b>Midday 2:30pm – 4:00pm</b>	<b>SESSION 28</b>	<b>Chair: Henry Segerman</b>
18 PM 28	1	2:30	REG	<b>George Hart</b> <i>Geometry Ascending a Staircase</i>		
18 PM 28	2	3:00	REG	<b>Faniry Razafindrazaka and Konrad Polthier</b> <i>Regular Surfaces and Regular Maps</i>		
18 PM 28	3	3:30	REG	<b>Vi Hart and Henry Segerman</b> <i>The Quaternion Group as a Symmetry Group</i>		

Creation Hall				Midday 2:30pm – 4:00pm	SESSION 29	Chair: Elaine Ellison
18 PM 29	1	4:30	SHRT	<b>Carla Farsi and Fabio Rovai</b> <i>The Beauty of an Archetype: Prime Numbers</i>		
18 PM 29	2	4:45	ABST	<b>Cheri Shakiban and Michael Hennessey</b> <i>Mathematics and Mechanics of Byzantine, Greek, Roman and Islamic Architecture</i>		
18 PM 29	3	5:00	ABST	<b>Sujan Shrestha</b> <i>Animated Lines to Animated Perspective</i>		
18 PM 29	4	5:15	SHRT	<b>Mahsa Kharazmi and Reza Sarhangi</b> <i>Geometric Study of Architectural Designs on a Twelfth Century Structure</i>		
18 PM 29	5	5:30	SHRT	<b>Elaine Ellison</b> <i>Common Threads between Mathematics and Quilting</i>		

Lecture Room V, Education Building				Midday 2:00pm – 3:30pm	SESSION 30	Workshop
18 PM 30	1	2:30	WORK	<b>Ho-Gul Park</b> <i>A Workshop on Making Klein Bottle using 4D Frame</i>		

Research Room, Basic Science Hall				Midday 2:00pm – 3:30pm	SESSION 31	Workshop
18 PM 31	1	2:30	WORK	<b>Kyongil Yoon, Hyunkyung Kim and Reza Sarhangi</b> <i>Geometric Constructions of Korean Danchong Patterns And Building Platonic Solids</i>		

**Coffee Break 4:00-4:30**

Creation Hall				Afternoon 4:30pm – 6:00pm	Business Meetings
18 PM	1	4:00	MEET	<b>Bridges Board Meeting</b>	
18 PM	2	5:00	MEET	<b>JMA Meeting</b>	

**Bridges Seoul Experimental Theater**  
**Eoullim Hall**  
**7:30-9:00**

# Bridges Seoul Experimental Theater

Director: Steve Abbott, Professor of Mathematics, Middlebury College, USA

The goal of this event is to provide a spirited, engaging evening of theater that should be as rewarding to the audience as it is to the conference participants who volunteer as actors. The intersection between mathematics and theater has grown substantially in recent years, enough to become an area for scholarly research, but the main thrust of this event will be to create an evening's entertainment consistent with the mathematics/art theme of Bridges.



• When: Monday, 18 August 2014, 7:30 pm

• Where: Euoullim Hall