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Mathematics and Computation in Music

6th International Conference, MCM 2017
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Preface

The 6th Biennial International Conference for Mathematics and Computation in Music (MCM 2017) took place during June 26–29, 2017, at the Faculty of Sciences of the Universidad Nacional Autónoma de México, in Mexico City, Mexico. Additional venues for recitals were kindly provided by the Escuela Superior de Música and the Museo Nacional de Historia "Castillo de Chapultepec".

As the flagship conference of the Society for Mathematics and Computation in Music (SMCM), MCM 2017 provided a dedicated platform for the communication and exchange of ideas among researchers in mathematics, informatics, music theory, composition, musicology, and related disciplines. It brought together researchers from around the world who combine mathematics or computation with music theory, music analysis, composition, and performance.

The program is available at http://www.mcm2017.org and featured three plenary lectures: the first by Guerino Mazzola (who introduced the *musical mathematical game* as a complement to the *mathematical music theory*), the second by Harald Fripertinger (who spoke on the combinatorics of tone-rows and their role in music), and a final one by Julio Estrada (who described some of the mathematical tools and inspirations that underlie his compositions).

There was a panel titled "Contemporary Music Composition in Relation to Mathematics and Computing: Current Perspectives and Approaches", with the participation of four Mexican composers: Juan Sebastián Lach (Conservatorio de las Rosas), Roberto Morales-Manzanares (Universidad de Guanajuato), Gabriel Pareyón (CENIDIM), and Edmar Soria, which was a valuable firsthand testimony of the fruitful interplay of the mathematical and computational approaches in the creation of music.

During three daily one-hour sessions, Octavio Alberto Agustín-Aquino (a member of the Organizing and Scientific Program Committee) delivered a "nano-course" on Guerino Mazzola's mathematical music theory, whose intent was to serve both as an homage to the current SMCM president and to introduce to an audience as wide as possible the techniques, results, and philosophical postures contained in Mazzola's work, with an emphasis on counterpoint.

The program included three evening recitals. The first was a guitar recital by Octavio Alberto Agustín-Aquino, who visited musical landscapes from eight countries (four from Europe and four from America) in a travelling salesman route, while keeping the proportion of the durations in approximate correspondence to that of the landmasses of the continents. The second one was a free jazz recital by Heinz Geisser (drums) and the president of the SMCM, Guerino Mazzola (piano), in the auditorium of the Escuela Superior de Música, which constituted an electrifying dialogue of gestures and mutual spaces of performance. The third one was performed by Harald Fripertinger (flute) and the head of the Organizing and Scientific Program Committee, Emilio Lluis-Puebla (piano), featuring music from Telemann, Beethoven, Schubert,

Gant, Marsh, and Thomas, in the wonderful environment of the *Alcázar* of the Museo Nacional de Historia "Castillo de Chapultepec", as a pure enjoyment of music, mathematics, and life.

The chapters in these proceedings correspond to the papers and two selected posters presented at the conference, following a careful peer-review process, which was optionally double-blind. We received 40 submissions from 62 authors across 10 countries. Each submission was assigned to one or two reviewers. A paper was accepted if and only if the recommendation of the reviewers was positive and a majority of the editors judged it a meritorious contribution; sometimes it required a second round of revisions. A total of 28 papers were accepted following review.

Last, but not least, we thank the following institutions for providing their infrastructure and human resources for the organization and promotion of MCM 2017:

– Facultad de Ciencias de la Universidad Nacional Autónoma de México
– Society for Mathematics and Computation in Music
– Escuela Superior de Música
– Georgia State University
– Museo Nacional de Historia
– Sociedad Matemática Mexicana
– Universidad de la Cañada
– Universidad Tecnológica de la Mixteca

July 2017

Octavio A. Agustín-Aquino
Emilio Lluis-Puebla
Mariana Montiel

Organization

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Guerino Mazzola	School of Music, University of Minnesota, USA
Emilio Lluis-Puebla	Faculty of Sciences, UNAM, Mexico
Octavio Alberto Agustín-Aquino	Universidad de la Cañada and Universidad Tecnológica de la Mixteca, Oaxaca, Mexico
Mariana Montiel	Georgia State University, USA
Gabriel Pareyón	National Center for Music Research, Documentation and Information, CENIDIM-INBA, Mexico
Roberto Morales-Manzanares	Laboratorio de Informática Musical, Universidad de Guanajuato, Mexico
Emil Awad	CECDA, Universidad Veracruzana, Mexico
Juan Sebastián Lach	Conservatorio de las Rosas, Michoacán, Mexico

Scientific Program Committee

The Scientific Program Committee was responsible for the scientific content of MCM 2017. It prepared the final list of oral and poster presentations and invited speakers and selected contributed papers based on peer review amongst those submitted for consideration. It consisted of:

Emilio Lluis-Puebla	Faculty of Sciences, UNAM, Mexico
Mariana Montiel	Georgia State University, Georgia, USA
Octavio Alberto Agustín-Aquino	Universidad de la Cañada and Universidad Tecnológica de la Mixteca, Mexico

Local Organizing Committee

The Local Organizing Committee was responsible for functional organization of MCM 2017, including the selection of the most suitable locations; preparation of the internet site and conference software; arrangement of the musical and social program; production and publication of the proceedings volume; organization of book exhibitions; and coordinating the contact between invited speakers, discussants, contributing authors, participants, publishers, and exhibitors. The LOC consisted of

Emilio Lluis-Puebla	Faculty of Sciences, UNAM, Mexico
Octavio Alberto Agustín-Aquino	Universidad de la Cañada and Universidad Tecnológica de la Mixteca, Mexico

with the valuable assistance of the following graduate and undergraduate students, all from the Faculty of Sciences, UNAM:

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Society for Mathematics and Computation in Music
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Georgia State University
Museo Nacional de Historia
Sociedad Matemática Mexicana
Universidad de la Cañada
Universidad Tecnológica de la Mixteca

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