

Program

Jun 23 - 26, 2026

**Mathematics and Computation in Music 2026
(MCM 2026)**

Bard College, Annandale-on-Hudson, New York, USA

Tue, June 23

9:15 AM

Arrival, Registration Pickup, or Registration

Break | Location: Near Olin Concert Hall in Franklin W. Olin Humanities Building

9:45 AM

9:50 AM

Welcome and Opening Remarks

Contribution | Location: Olin Concert Hall in Franklin W. Olin Humanities Building | Speakers: Mariana Montiel, Charles Doran

9:55 AM

10:00 AM

Voice Leading and Rhythm

Session | Location: Olin Concert Hall in Franklin W. Olin Humanities Building | Convener: Jason Yust

10:00 – 10:25 AM (25m)

The Note at Infinity

Speaker

Dmitri Tymoczko

10:35 – 11:00 AM (25m)

Counting Rhythms Using Combinatorics on Words

Speaker

Gonzalo Romero-Garcia

11:05 – 11:30 AM (25m)

Coffee Break, Registration Pickup, or Registration

11:35 AM – 12:00 PM (25m)

On Perfectly Balanced Sets: a Computational Investigation

Speaker

Paul Lascabettes

12:05 PM

12:15 PM

Poster Session

Poster Session | Location: Near Olin Concert Hall in Franklin W. Olin Humanities Building

Poster: Tonnetz-Based Mathematical Invariants for the Analysis of Unequal-Tempered Tuning Systems

Speaker

Kateri Doran

Location

Near Olin Concert Hall in Franklin W. Olin Humanities Building

Poster: Musical Perspectives

Speaker

Dmitri Tymoczko

Location

Near Olin Concert Hall in Franklin W. Olin Humanities Building

Poster: Towards a Formalization of Fretboards and Gestural Effort

Speaker

Matt Chiu

12:45 PM

12:50 PM

Lunch Break: On Own at Cafeteria or Restaurants**Break** | **Location:** On Own at Cafeteria or Restaurants

1:50 PM

2:00 PM

Applications of Mathematics to Music Theory Analysis of Composers and Styles: Part 1**Session** | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Gonzalo Romero-Garcia

2:00 – 2:25 PM (25m)

Note Spelling Without Scales in Morton Feldman's String Quartet No. 2**Speaker**

Noah Kahrs

2:35 – 3:00 PM (25m)

Persistent Homology on Pointed Chord Spaces**Speaker**

Alessandro Casali

3:10 – 3:35 PM (25m)

Modeling End-Weighted and Goal-Directed Conceptions in Gamelan Gong Kebyar**Speaker**

Qiuwan Zhao

3:40 PM

3:40 PM

Break**Break** | **Location:** Bard College, Annandale-on-Hudson, New York, USA

3:50 PM

4:00 PM

MatheMusical Virtual Museum & Planet Voices by Gilles Baroin**Session** | **Location:** New Annandale House (Center for Experimental Humanities)

4:00 – 4:30 PM (30m)

MatheMusical Virtual Museum & Planet Voices by Gilles Baroin**Speaker**

Gilles Baroin

4:35 PM

4:35 PM

Dinner Break: On Own at Cafeteria or Restaurants**Break** | **Location:** On Own at Cafeteria or Restaurants

6:45 PM

7:00 PM

Keynote Address: Thomas Noll**Session** | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Mariana Montiel

7:00 – 8:00 PM (1h)

Keynote by Thomas Noll: The Algebra of the 'Tongesellschaft': Towards a Mathematical Conceptualization of Tonal Interaction**Speaker**

Thomas Noll

Description

The concept of the *well-formed scale* has been a classic paradigm within mathematical music theory for more than three decades. This keynote address traces its subsequent structural and theoretical developments since our inaugural conference in 2007.

By indexing the seven pitches of the diatonic scale both by fifths and by step intervals, one obtains a permutation of the integers from 0 to 6. The fundamental impetus for this entire line of inquiry lies in the fact that this permutation constitutes a multiplication by 4 modulo 7, which is an automorphism of the cyclic group Z_7 . From this structural kernel, a comprehensive network of mathematical models has evolved, illuminating how pitches organize themselves and give rise to musical meaning.

Drawing upon Jacques Handschin's evocative concept of the "*Tongesellschaft*" (*tone-society*), this lecture invites us to re-evaluate historical frameworks of tonal organization through the lens of algebraic models. The trajectory spans from the medieval gamut and the interpretive conventions governing sixteenth-century partbooks to the ultimate consolidation of common-practice harmonic tonality.

8:00 PM

8:10 PM

Concert

Session | Location: Olin Concert Hall in Franklin W. Olin Humanities Building

8:10 – 9:30 PM (1h 20m)

Concert: The Music of Tom Johnson

Location

Olin Concert Hall in Franklin W. Olin Humanities Building

Description

Deep Rhythms VIII (Wood Block Music) by Tom Johnson
Performed by Michael Jones

Tilework for Solo Violin by Tom Johnson
Performed by Wendy Case

Alexandrins pour Guitare by Tom Johnson
Performed by Matt Sargent

Selections from *The Chord Catalogue* by Tom Johnson
Performed by Juan Diego Mora Rubio

9:30 PM

Wed, June 24

9:00 AM

Algebraic and Topological Perspectives on Scale Theory, Harmony, and Neo-Riemannian Transformations: Part 1

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Mariana Montiel

9:00 – 9:25 AM (25m) **All-Interval Series in Cyclic Spaces**

Speaker
Ethan Bonnell

9:35 – 10:00 AM (25m) **Alternative Symmetries and Systems**

Speaker
Luis R. A. Finotti

10:10 – 10:35 AM (25m)
A Matrix Representation of Lewin Duality, and Dualizing Operators for Dual Groups of Triadic Transformations

Speakers
Thomas M. Fiore, Thomas Noll

10:45 – 11:10 AM (25m) **A Theory of Scales and Orbit Covers**

Speaker
Drew Flieder

11:15 AM

11:15 AM

Coffee Break, Registration Pickup, or Registration

Break | **Location:** Near Olin Concert Hall in Franklin W. Olin Humanities Building

11:30 AM

11:35 AM

Algebraic and Topological Perspectives on Scale Theory, Harmony, and Neo-Riemannian Transformations: Part 2

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Mariana Montiel

11:35 AM – 12:00 PM (25m)
Symmetries of the Modal Color Theory Hyperplane Arrangements

Speaker
Paul M. Sherrill

12:10 – 12:35 PM (25m)
Wick-Rotated Fibonacci Polynomials from the Scale-Step Interval Patterns of the Pentatonic and Diatonic Collections

Speaker
M. A. Coury-Hall

12:40 PM

12:40 PM

Lunch Break: On Own at Cafeteria or Restaurants

Break | **Location:** On Own at Cafeteria or Restaurants

1:40 PM

1:50 PM

Algebraic and Topological Perspectives on Scale Theory, Harmony, and Neo-Riemannian Transformations: Part 3

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Mariana Montiel

1:50 – 2:15 PM (25m)

Harmonic Qualities of Generic Sets

Speaker

Jason Yust

2:25 – 2:50 PM (25m)

Modeling the Harmonic Syntax of Rock Music with Hidden Markov Models

Speaker

Matthew Anthony Ludwig

3:00 – 3:25 PM (25m)

Planar Projections of Tone Systems and Faithful Keyboards

Speaker

Marek Zabka

3:30 PM

3:40 PM

Communication Performance

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building

3:40 – 4:15 PM (35m)

Functional Harmony After Tonality: Composing with Orbit Covers

Speaker

Drew Flieder

4:25 – 5:00 PM (35m)

An Application of Alternative Symmetries and Systems

Speaker

Luis R. A. Finotti

5:05 PM

5:10 PM

MatheMusical Virtual Museum & Planet Voices by Gilles Baroin

Session | **Location:** New Annandale House (Center for Experimental Humanities)

5:10 – 5:40 PM (30m)

MatheMusical Virtual Museum & Planet Voices by Gilles Baroin, Wednesday

Speaker

Gilles Baroin

5:40 PM

5:40 PM

Dinner Break: On Own at Cafeteria or Restaurants

Break | **Location:** On Own at Cafeteria or Restaurants

6:45 PM

6:45 PM

Walk 15 Minutes to László Z. Bitó '60 Conservatory Building

Break | **Location:** Bard College, Annandale-on-Hudson, New York, USA

7:00 PM

7:00 PM

Keynote Address: Noam Elkies

Session | **Location:** László Z. Bitó '60 Conservatory Building | **Convener:** Charles Doran

7:00 – 8:00 PM (1h)

Keynote by Noam Elkies: Canonical Forms and Transformations

Speaker

Noam Elkies

Description

We review the problem of constructing musical canons, and the standard recursive technique for constructing them given a criterion of harmonic consonance. We then illustrate how symmetries and near-symmetries of the consonance relation help composers create canons that go beyond counterpoint exercises to serve as structural and expressive tools.

8:00 PM

8:10 PM

Concert

Session | **Location:** László Z. Bitó '60 Conservatory Building

8:10 – 9:30 PM (1h 20m)

Concert: Participant Compositions and Performances**Location**

László Z. Bitó '60 Conservatory Building

Description**I.**

Composer: Kateri Doran

Performers: Kateri Doran (flute) and Saoirse Doran (clarinet, piano)

Quantum Loops — solo flute (ca. 6 minutes)

Mirror Loops — flute and clarinet (ca. 3 minutes)

Euler's Toccata — solo piano (ca. 3 minutes)

II.

Composer: Clifton Callender

Performer: Jingwen Tu (piano)

Meditations on a Warming Planet, No. 1 & 3 (ca. 7 minutes in total)

III.

Composer: Octavio Agustín-Aquino

Performer: Trevor Babb (guitar)

Gabriela

La Toninera

Camila

Ximena

(ca. 8:30 minutes in total)

IV.

Composer: Brian Martínez Rodríguez

Performer: Trevor Babb (guitar)

Preludios de Bitácora: I. Bitácora de la Vista sobre el Mar (ca. 4 minutes)

V.

Composer: Noam Elkies

Performer: Noam Elkies (piano)

No Clapping 'til the Music Ends: A Study in Canons for Solo Piano Suggested by Reich's Clapping Music (2008) (ca. 5 minutes)

VI.

Composer: Jason Yust

Performers: Steve Bonacci (saxophone), Matt Sargent (guitar), Michael Jones (percussion), and Taylor Long (percussion)

Prime Meridian (ca. 6 minutes)

9:30 PM

Thu, June 25

9:30 AM

Mathematical Approaches to Music Cognition, Pitch Perception, Consonance-Dissonance, and Performance

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Clifton Callender

9:30 – 9:55 AM (25m)

Transformational Analysis of Geometric Nets under Isotonicity Constraints

Speaker

Kristina Hurajova

10:05 – 10:30 AM (25m)

Consonance Ratings of Most Even Tetrachords Obtained by Variation of Phases

Speaker

Luis Nuno

10:35 – 11:00 AM (25m)

Coffee Break, Registration, and MatheMusical Virtual Museum & Planet Voices by Gilles Baroin

11:05 – 11:30 AM (25m)

Sound and Visual Objects in N Dimensions in the Labyrinth of Time

Speakers

Gilles Baroin, Stephane de Gerando

11:40 AM – 12:05 PM (25m)

Perceptual Signal Analysis and Eigenvalue-Weighted Metrics for Musical Audio Quality Assessment

Speaker

Sanjay Majumder

12:10 PM

12:15 PM

Applications of Mathematics to Music Theory Analysis of Composers and Styles: Part 2

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Gonzalo Romero-Garcia

12:15 – 12:40 PM (25m)

Quantifying Costere's Polarization of Pitch-Class Collections via Jensen-Shannon Divergence

Speaker

Fernando Gualda

12:45 PM

12:45 PM

Lunch Break: On Own at Cafeteria or Restaurants

Break | **Location:** On Own at Cafeteria or Restaurants

2:20 PM

2:30 PM

Quantum Theory and Music

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Sara Sabag-Sabja

2:30 – 2:55 PM (25m)

Entangled Function Leading

	Speaker Thomas Noll
	3:05 – 3:30 PM (25m) Density Matrix RNN (DM-RNN): A Quantum Information Theoretic Framework for Modeling Musical Context and Polyphony Speaker Mariana Montiel
3:35 PM	
3:45 PM	Electronic Music Demonstrations by Bard Preparatory Students Contribution Location: Near Olin Concert Hall in Franklin W. Olin Humanities Building
4:30 PM	
4:35 PM	Communication Performance Session Location: Olin Concert Hall in Franklin W. Olin Humanities Building
	4:35 – 5:05 PM (30m) The QuArtet: Embodying Quantum Theory as an Ensemble Speaker Thomas Noll
5:10 PM	
5:10 PM	Walk 15 Minutes to Blithewood Manor for Banquet IF Pre-registered for Banquet, Otherwise On Own for Dinner at Cafeteria or Restaurants Break Location: Bard College, Annandale-on-Hudson, New York, USA
5:50 PM	
6:00 PM	Banquet in Blithewood Manor IF Pre-registered, Otherwise Dinner at Cafeteria or Restaurants Break Location: Blithewood Manor on Bard Campus if Pre-registered
8:00 PM	

Fri, June 26

9:30 AM

Algorithms and Modeling for Music and Music Related Phenomena

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Marek Zabka

9:30 – 9:55 AM (25m)

The Predictive Benefit of Order Increases in Melodic N-Gram Models

Speaker

David Temperley

10:05 – 10:30 AM (25m)

The Operatic Voice (I): Survey of Mathematical and Computational Models

Speaker

Sara Sabag-Sabja

10:35 – 10:55 AM (20m)

Coffee Break, Registration, and MatheMusical Virtual Museum & Planet Voices by Gilles Baroin

11:00 – 11:25 AM (25m)

The Operatic Voice (II): Characterization of Squillo: Acoustic Parameters and Perceptual Validation

Speaker

Sara Sabag-Sabja

11:30 AM

11:35 AM

All Invited: Meeting of the Society for Mathematics and Computation in Music

Contribution | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Speakers:** Mariana Montiel, Gonzalo Romero-Garcia, Thomas Noll, Clifton Callender, Marek Zabka, Thomas Fiore, Pawel Dlotko

Description

- i. General synthesis of activities over the last 2 years (Mariana Montiel)
- ii. Website (Gonzalo Romero-Garcia, Thomas Noll)
- iii. Publications Committee Report (Clifton Callender, Marek Zabka)
- iv. Financial Report (Thomas Fiore)
- v. Elections (Gonzalo Romero-Garcia, Thomas Noll)
- vi. Presentation of MCM 2028 in Warsaw (pre-recorded by Pawel Dlotko) (Thomas Fiore, Mariana Montiel)

12:35 PM

12:35 PM

Lunch Break: On Own at Cafeteria or Restaurants

Break | **Location:** On Own at Cafeteria or Restaurants

1:35 PM

1:40 PM

Computational Approaches to Music

Session | **Location:** Olin Concert Hall in Franklin W. Olin Humanities Building | **Convener:** Thomas Noll

1:40 – 2:05 PM (25m)

Automated Harp Pedaling: A Graph-Theoretic Approach to Pitch Spelling and Pedal Settings

Speaker

Clifton Callender

2:45 PM	2:15 – 2:40 PM (25m) A New Version of OMM for Melodies and Rhythms Speaker Carlos Agon
2:55 PM	Communication Performance Session Location: Olin Concert Hall in Franklin W. Olin Humanities Building
3:35 PM	2:55 – 3:30 PM (35m) Rotation: An Algorithmic Musical Work Based on Temporal Translations, Pattern Variations, and Musical Tilings Speaker Paul Lascabettes
3:35 PM	Closing Contribution Location: Olin Concert Hall in Franklin W. Olin Humanities Building Speakers: Mariana Montiel, Charles Doran
3:45 PM	