



April 15, 2021  
18h Salzburg (CEST)  
Online Lecture  
In English

**Webex Login Details:**

<https://globalpage-prod.webex.com/join>  
Meeting number (access code): 121 955 2668  
Meeting password: X74Wum2rJvC  
Participation free of charge

Lecture Series

# MUSIC & MATHEMATICS

From Music to Mathematics and Backwards:  
Introducing Algebra, Topology and Category Theory  
into Computational Musicology

**Moreno Andreatta**

(IRMA, University of Strasbourg / IRCAM, Paris, FR)

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## MUSIC & MATHEMATICS

### From Music to Mathematics and Backwards: Introducing Algebra, Topology and Category Theory into Computational Musicology

Moreno Andreatta, CRNS Director of research on mathematics and music at IRMA - Institut de Recherche Mathématique Avancée, University of Strasbourg / Associate Researcher at IRCAM - Institute for Research and Coordination in Acoustics/Music, Paris, France.  
Founding member of the *Journal of Mathematics and Music* (Taylor & Francis)

This lecture will provide an overview of the most active research axes of the SMIR Project at the University of Strasbourg. After discussing the “mathemusical” dynamics underlying the SMIR project, Moreno Andreatta will offer several music-theoretical examples showing how to approach interesting mathematical problems starting from music representations and computer-aided modelling. The focus will be in particular on some computational models of harmonic spaces that have been implemented in the web environment The Tonnetz, which enables an interactive exploration of a panoply of geometric spaces for music-theoretical, analytical and compositional purposes. Furthermore, a current research project which constitutes the cognitive component of the SMIR project will be presented.

This series deals with the interdisciplinary approaches and perspectives between music and mathematics. The implementation and design is carried out together with international experts from the fields of mathematics, statistics, computer science, composition and music research and opens up insights into current research and developments in the border areas between the scientific fields.

This lecture is part of an interdisciplinary course in which invited speakers discuss topics in their respective fields of research.



#### Concept & Direction:

Arne Bathke (*Statistician, Data Scientist,  
Head of Programme Area (Inter)Mediation,  
Dean of the Faculty of Natural Science | Department of  
Mathematics & SciTechHub Itzling, University of Salzburg*)

Katarzyna Grebosz-Haring (*Systematic Musicologist |  
Department of Musicology and Dance Studies, Programme  
Area (Inter)Mediation, Focus Area Science & Art |  
University Mozarteum Salzburg, University of Salzburg*)

Martin Losert (*Music Educator, Head of Department  
Music Education, Head of Programme Area (Inter)Mediation |  
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#### In cooperation with

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