



**Institute** of  
**mathematics**  
& its applications

**IMA MATHS IN MUSIC  
CONFERENCE**

13 – 15 JULY 2022

Royal College of Music, London

**CONFERENCE  
PROGRAMME**



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IMA Maths in Music  
**CONFERENCE PROGRAMME**

Day One – Wednesday 13<sup>th</sup> July 2022

08.40	Registration
09.20	Welcome Remarks
09.40	<i>Key note: <b>Orchestral Geometries: Torus, sphere, Antisphere</b>, Emily Howard</i>
10.40	Coffee Break and Networking
11.00	<i>Points of convergence - A dialogue between music and dynamical systems research, Rempe Lasse</i>
11.40	<i>A Framework for Topological Music Analysis (TMA), Alberto Alcala-Alvarez</i>
12.20	<i>Some compositional implications of symmetries in microtonal pitch class sets, Paul Archbold</i>
13.00	Lunch & Networking
14.20	<i>Key note: <b>The Music of Maths: a 'mathemusical' journey</b>, Moreno Andreatta</i>
15.20	<i>Investigating the relationship between linguistic measures and self-similarity matrices in assessing musical structure, Trudie Strauss</i>
16.00	Coffee Break and Networking
16.20	<i>Network topology of generalized musical spaces, Marco Buongiorno Nardelli</i>
17.00	<i>SCALES - Rhythms of fractals and collective movement, David Hewett &amp; Bernhard Schimpelsberger</i>

17.40	Day 1 Ends
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## Day Two - Thursday 14<sup>th</sup> July 2022

09.00	<b>Key note: Mathematics and music: the perspective of the listener, Michelle Phillips</b>
10.00	<i>Meeting in the Shadows, Dorothy Ker</i>
10.40	<b>Coffee Break &amp; Networking</b>
11.00	<i>Musical tonality and synchronization, Eyal Buks</i>
11.40	<i>Math and religion in Arvo Pärt's De Profundis, Ismael Patriota</i>
12.20	<i>Well-Tempered Complexity, Lane Hughston</i>
13.00	<b>Lunch &amp; Networking</b>
14.20	<b>Public lecture: Robin Wilson &amp; Rob Sturman</b>
15.20	<p>4 Poster mini-talks (15min each)</p> <ul style="list-style-type: none"> <li>• <i>Mathematics behind the Multiverse of Music, Mr Pranav Bhatt</i></li> <li>• <i>A Network Science Approach to Efficient Voice-Leading, Dr Rob Sturman</i></li> <li>• <i>Approaching Multi-Pitch Estimation with Geometric and Combinatorial Modelling, Dr Thomas Goodman</i></li> <li>• <i>Rhythmic Complexity Effects on Ensemble Timing Linkage with a Violin Duo, Min Li</i></li> </ul>
16.00	<b>Coffee Break &amp; Networking</b>
16.20	<p>4 Poster mini-talks (15min each)</p> <ul style="list-style-type: none"> <li>• <i>Music Development With The Use Of Neural Networks: An Approach To Iannis Xenakis's Music, Eleftheria Bargiota</i></li> <li>• <i>Discrete Fourier Transform unveils decreasing diatonicity and increasing fragmentation in Debussy's piano music: a diachronic co, Ludovica Schaerf</i></li> <li>• <i>Musica universalis and Harmonices Mundi - on mathematical and physical aspects of Renaissance and Baroque music and the context, Daria Skrzypek</i></li> </ul>

	<ul style="list-style-type: none"> <li><i>Using Group Theory to identify Musical Patterns , Dr Gert Johannes Jacobus Botha</i></li> </ul>
<b>17.00</b>	<b>Coffee Break &amp; Networking</b>
<b>17.40</b>	<b>Concert</b>
<b>18.00</b>	<b>Day 2 Ends</b>
19.30	<b>Conference Dinner</b>

## Day Three – Friday 15<sup>th</sup> July 2022

<b>09.00</b>	<b>Key note: Mathematics and the Source of Music, Geraint Wiggins,</b>
10.00	<i>Assessing the feasibility of real-time analysis of timing and coordination between ensemble musicians, Thomas Goodman</i>
<b>10.40</b>	<b>Coffee Break &amp; Networking</b>
11.00	<i>Applying Information Theory and Statistics to Numbers in Music, Alan Shepherd</i>
11.40	<i>Heart Rate Variability and the Impact of Music Listening on Autonomic State, Paras Patel</i>
12.20	<i>The Complex Sum of Simple Parts: how <math>\_LV/xi\_</math> produces an immersive whole through simultaneous variation, Léon Snyman</i>
<b>13.00</b>	<b>Conference Ends</b>