



The Gresham Festival of Musical Ideas

Friday 20 June 2025

The Gresham Festival of Musical Ideas is a one-day event featuring discussions, presentations, and performances that explore and celebrate the intersection of music with other disciplines.

In collaboration with Gresham Professors Robin May (Physics), Melissa Lane (Rhetoric), Sarah Hart (former Professor of Geometry), and Chris Lintott (Astronomy), and Professor Morten Kringelbach (Neuroscience), the festival examines music's role as a metaphor, language, and tool for understanding the wider world. We will chart an evolution of musical ideas, talking about the biology and co-evolution of human language and music, before moving through Ancient Greek philosophies on music's place in society, education, and virtue. We will explore the mathematical principles that underpin both the explanation and creation of music and ask how the brain finds pleasure, meaning, and movement in music. We will also discuss the links between music and space—from Pythagoras to contemporary astro-sonification projects—tuning our ears to the symphony of the cosmos itself.

This is a drop-in event, and attendees are welcome to join any of the events at their convenience.

EVENT PROGRAMME

12.45 Welcome and opening remark "*Prelude: Traces Through Time*" by Gresham Professor of Music Milton Mermikides

13.00 - 13.45 "The Evolution of Music" with Gresham Professor of Physic Robin May

Musical instruments have been found in the archaeological record from at least 40,000 years ago and despite the diversity of human civilization, we are yet to find a culture which lacks music. Other species also make 'music' – from a grasshopper's chirp to a nightingale's song – but is human music simply an extension of that evolutionary heritage? What can modern studies of genetics and anthropology tell us about the evolution of human musicality? Can neuroscience explain why music evokes such strong emotions? And what happens when the 'biology of music' goes wrong? (30 mins +15 mins Q&A)

14.00 - 14.45 "Climbing Mount Groove: Music and Dance in the Brain" with Professor Morten L. Kringelbach (Professor of Neuroscience, University of Oxford)

Why does a rhythm make us tap our feet—or even get up and dance? In conversation with Professor of Music Milton Mermikides, neuroscientist Professor Morten Kringelbach reveals how the brain finds pleasure, meaning, and movement in music. Drawing on extensive brain imaging, analysis and real-

world studies, the talk explores how music and dance engage our brain's predictive systems—where just the right balance of familiarity and surprise creates joy. From funk to fugues, bossa to the Beatles – the talk will offer insights into why groove feels so good, and how rhythm links brain, body and culture. (30 mins +15 mins Q&A)

15.00 – 16.00 Break and refreshments - Live music in the courtyard and a *Hidden Music* exhibition in the Hall.

16.00 - 16.45 "The Virtues of Music" with Gresham Professor of Rhetoric Melissa Lane

This dialogue presents the *what* and *why* of Ancient Greek music, and its profound role in philosophy, society and the individual. Education without music was an impossibility in ancient Greece; virtue without music, equally so. One scholar (writing in the late twentieth century) compared the pervasive social presence and impact of the medium of *mousikē* in Ancient Greece to that of television. But with its participatory motor training and habituation, *mousikē*, was also a primary mode of acculturation: a way to shape the perceptual attunement and overall outlook of the members of a political community. Engagement with poetry and music pervaded all aspects of Ancient Greek life, and because musical education was the core of Greek education, it was also the core of Greek citizenship and of the virtues. Different musical modes were even thought to impart distinct virtues; for Plato, training in musicality could harmonise the soul, while changes in musical styles and genres could dislocate the entire polity (*Laws*, 812a-e, 700a-701a). (30 mins +15 mins Q&A)

17.00 - 17.45 "The Maths of Music (and the Music of Maths)" with former Gresham Professor of Geometry Sarah Hart

Professors Sarah Hart and Milton Mermikides reveal the deep connections between music and mathematics. Whether that's the Euclidean rhythms that shape funky grooves, the set theory that maps every possible chord, or a live rendering of the geometric elegance of Gresham Professor Iannis Xenakis's algorithmic compositions, this event will reveal how maths can help explain – and even inspire – the richness of musical experience. (30 mins +15 mins Q&A)

18.00 - 18.45 "Remixing the Music of the Spheres" with Gresham Professor of Astronomy Chris Lintott

Professors Lintott and Mermikides present and discuss historical and contemporary musical representations of astronomical data including Pythagoras's parallelism of tuning purity and celestial movement, Plato's cosmic harmony in *Timaeus*, Kepler's representations of orbital eccentricity as musical scales, Herschel's blending of music and cosmology, and the tendency of stable planetary systems to 'find' harmonic ratios. The contemporary field of *astro-sonification* – using sound to represent, search and communicate to a diverse audience, astronomical patterns from black hole radiation to exoplanetary systems – is demonstrated with original examples. (30 mins +15 mins Q&A)

18.45 Closing remark "*Coda: Circles in Time*" and Thank You.