### Sapienza Neuroscience Seminar Series in 2025: Prof. Elvira Brattico

We kindly invite you and your coworkers and contacts to follow **Prof. Elvira Brattico**'s seminar entitled "FINDING BEAUTY IN THE MUSIC AND IN THE BRAIN – FROM ACOUSTIC PARAMETERS TO CULTURE," June 26th, 2025, 2:30 p.m. (CEST, Italian, French, and German time), Sapienza University of Rome.

Yours sincerely, Bianca M.S. Inguscio

#### Date and schedule of the seminar:

June 26, 2025 02:30-03:30 p.m. CEST (Italian, German, and French time)

**Avenue:** Department of Molecular Medicine, Aula 102, first floor-Building D Regina Elena (entrance from V.le Regina Elena 295 B). **Join the Online Zoom session at** 

https://uniroma1.zoom.us/j/84932596371?pwd=IRNzs75cxc0T1ii5JPmjcXWvVd7tEP.1

The talk: Humans are driven to beauty in the environment, including the auditory one. For centuries, composers have aimed to produce music that would be judged as beautiful (although avant-garde artistic movements have deviated from this goal) and the beauty concept is nowadays still central for laypersons and musicians alike, as revealed by a recent survey study. In spite of the centrality of beauty in music, cognitive neuroscience investigations have largely ignored the search for the neural foundations of musical beauty. Here I will present a series of studies in which I aimed to fill in this gap extending the search to several Western musical styles and even to faraway musical cultures. Using continuous behavioral ratings collected with a motion sensor and experts' ratings, we identified and musicologically analysed beautiful and not-beautiful musical passages in whole pieces representing different Western music styles. Then, we measured the brain responses to those passages with functional magnetic resonance imaging (fMRI). In a first study, we conducted a regional analyses of the fMRI responses and found that beautiful passages activated the orbitofrontal cortex (OFC), linked to reward and aesthetic appraisal, while less beautiful ones engaged bilateral supratemporal regions related to sensory processing. Effective connectivity analysis showed that beautiful music inhibited auditory cortex activation while strengthening communication with the OFC, suggesting a distinct neural pathway for aesthetic appreciation. In another follow up study, we focused on the dynamic time-varying connectivity of brain circuits and found that individual brain network configurations influenced beauty perception, with the OFC playing a key role and with a frequent switching between reward-related regions during the course of listening. In turn, listening to non-beautiful music connected only sensory-motor areas, reflecting the brain's effort to interpret its complexity. After these endevours concentrated on Western music, we proceeded to study the brain correlates of non-Western musical experiences, specifically the emotional and aesthetic responses to traditional Chinese music. The preliminary findings indicate that the cultural background of the listeners significantly shapes how musical beauty and emotions are perceived and processed in the brain

#### More about the invited Speaker:

Prof. Elvira Brattico (University of Aahrus, Denmark and University of Bari, Italy) <u>https://pure.au.dk/portal/en/persons/elvira.brattico%40clin.au.dk</u> Elvira Brattico since 2015, is Professor of Neuroscience, Music and Aesthetics at the Department of Clinical Medicine, Aarhus University, Denmark and Principal Investigator of the Danish center of excellence Center for Music in the Brain (MIB). Since October 2019 she is also part-time Professor of General Psychology at the Department of Education, Psychology, Communication, University of Bari, Italy, Prof. Brattico is co-founder of two Nordic centers of excellence dedicated to psychological and neuroscientific research on music: in addition to the Danish MIB center, she led the Aesthetic module of the Finnish Center for Interdisciplinary Music Research (2008-2013; Universities of Helsinki and Jyväskylä). She earned four academic degrees in Italy (BA in Psychology; MA in Piano Performance; MA in Philosophy; Specialization Diploma in Special Education). In 1998 she moved to Finland, first to work at the Cognitive Brain Research Unit and then, to pursue in 2007 a PhD in Psychology and Cognitive Neuroscience at the University of Helsinki. Since 2009 she is Adjunct Professor of Music Neuroscience at the University of Jyväskylä and since 2014 of Biological Psychology at the University of Helsinki. Her research focuses on auditory cognitive neuroscience, especially in relation to music, aesthetics and learning. Since 2014, she has supervised/co-supervised to completion 18 doctoral theses in Psychology, Health Sciences and Musicology in Finland, Denmark, Germany and Italy. Her publication record includes over 150 scientific articles published in international peer-reviewed journals, as well as 6 books (3 published by international publishing houses such as Routledge, Springer and Frontiers Media SA). She also wrote numerous book chapters for instance for Oxford University Press, Routledge, Psychology Press, Springer. She is considered a pioneer of music neuroaesthetics and naturalistic auditory neuroscience, as evidenced by keynotes in national and international conferences (e.g., ESCOM, IAEA, Auditory Cortex, AIP2020. AIRIPA), her presence in steering committees (IAEA, Neuromusic, CBRU, MIB, CICERO Learning) and editorial roles (Frontiers in Psychology, PLOS ONE, Psychomusicology, Applied Sciences, Palgrave Communications, Heliyon). She is periodically invited to act in evaluation committees for international funding and competitions and has recently acted as panelist for an ERC Grant. Her research appears periodically in the media and she is an eager organizer of national and international concert-conferences including the main conference of the Neurosciences of Music sector in 2021 in Aarhus (Neurosciences and Music VII). She currently heads the biannual Aarhus Summer School in Music Neuroscience at Aarhus Summer University.erves as the founding Scientific and Academic Director of The Sense Innovation and Research Center, a joint venture of the Lausanne University Hospital, the University of Lausanne, and the University of Applied Sciences of Western Switzerland. He earned a double BA from Johns Hopkins University (1995). He received his Ph.D. with honors in neuroscience from the Albert Einstein College of Medicine, Yeshiva University (2001). He was a post-doctoral scientist at the University Hospital of Geneva, Switzerland. Since 2003, he has held a faculty position at the University Hospital Center and the University of Lausanne, Switzerland (CHUV-UNIL), with appointments in the Radiology, Clinical Neurosciences, and (since 2015) Ophthalmology Departments. Since 2008, he has held an adjunct faculty position at Vanderbilt University (Nashville, TN, USA). He is the founding director of the Laboratory for Investigative Neurophysiology and the CIBM EEG CHUV-UNIL Section of the Center for Biomedical Imaging. Dr. Murray has a contiguous record of grant support from the Swiss National Science Foundation and numerous other foundation and industrial grants. He is the laureate of awards from the Leenaards Foundation, the Swiss Society for Biological Psychiatry, the Swiss National Science Foundation, and the Swiss Brain League. Dr. Murray has published over 200 original research He currently holds editorial positions at Brain Topography(Editor-inarticles and reviews. Chief), Neuropsychologia (Section Editor), and Current Biology (Editorial Board). His research focuses on brain imaging and mapping methods as well as their applications in both health and disease across the lifespan. His work has not only led to new schemas of brain functional organization but also to new diagnostic and intervention strategies for cognitive dysfunction using sensory processes as an access point.

Host: Bianca Maria Serena Inguscio, biancams.inguscio@uniroma1.it



DIPARTIMENTO DI FISIOLOGIA E FARMACOLOGIA "V. ERSPAMER"

# FUNDING BEAUTY IN THE MUSIC AND IN THE BRAIN-FROM ACOUSTIC PARAMETERS TO CULTURE



## Prof. Elvira Brattico

Center for Music in the Brain, Aarhus University, Denmark, Department of Education, Psychology, Communication, University of Bari, Italy

June 26<sup>th</sup>, 2025, 2:30 pm

Department of Molecular Medicine, room nº 102, first floor-Building D Regina Elena (entrance from V.le Regina Elena 295 B)

Zoom Session at https://uniroma1.zoom.us/j/84932596371?pwd=IRNzs75cxc0T1ii 5JPmjcXWvVd7tEP.1