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Presentation Title: Interactive Hearts and Brains in Music

Abstract:

Singing and playing music are highly coordinated forms of human social interaction and embody an essential part of human life. There is neurophysiological evidence that interpersonal synchrony of heart and brain oscillations may be a valid marker of social or group behaviour. Application of phase synchronization algorithms and graph-theoretical network approaches to assess network activity during singing and music playing showed that: (i) heart and brain oscillations synchronize both within and between individuals and their brains, (ii) oscillatory couplings consist of an interplay across different frequencies, subsystems, and brain areas, and (iii) coherent activity at multiple scales constitutes functional networks of small-world topology. The high degree of clustering and the short path length indicate a high degree of segregation and integration within and between the networks. The present research considers interpersonal oscillatory couplings as a general mechanism supporting communication, voluntary action coordination, and music performance.