



Department of
Mathematical Sciences

Colloquium

Dr. Elaine Chew

Senior CNRS Researcher

STMS Lab at IRCAM

Friday,
September 24th,
2021 @ 2:00pm

Online via Microsoft
Teams



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The Heart of Music: From Expressivity to Neurocardiology

Music expressivity is the means through which performers elicit responses from listeners. The nature of music means that many expressive aspects of music can be represented mathematically, quantitatively, making it amenable to computational analyses. The shaping of these sonic properties conveys structures, affect, and meaning. I shall describe some of the ways we can capture expressivity and see the structures they convey. Next, I will show that recordings of cardiac arrhythmias, the result of the electrical conduction system of the heart gone awry, possess many properties similar to that of expressive music. In neurocardiology, the brain and autonomic nervous system are known to influence cardiac electrophysiology and its propensity for arrhythmias. Here, I will describe our study on cardiac response to live music performance, and how quantifiable aspects of music expressivity can be exploited to investigate heart-brain interactions. Finally, I shall introduce our work on music therapeutics with physiological feedback.



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