

---

# The dynamics of synchronous human clapping: from experiment to model

Ryan Lukeman\*<sup>1</sup>

<sup>1</sup>St. Francis Xavier University (CANADA) – Canada

## Abstract

The emergence of collective synchrony among interacting units such as people, cells, or animals has been a well-studied phenomenon. Coupled oscillator models are often used to study how synchrony emerges in these instances, yet interesting dynamics can develop in real systems after synchrony is established. In this work, we study a specific example of post-synchrony dynamics via groups of people clapping in unison. By collecting audio data on individuals and groups (including groups of over 100 people) attempting to maintain a collective rhythm, the evolution of group frequency, period, and level of synchrony are presented. These metrics form the blueprint for construction of an integrate-and-fire type model to capture the essential dynamics of the experimental observations, to pinpoint what aural interactions might govern such collective behaviour.

---

\*Speaker