Seminar Title

On Phylogenetics and Polytopes.

Speaker: Professor Emanuele Delucchi (University of Applied Arts and Sciences of Southern Switzerland and University of Pisa)

Date/Time: Monday March 22, 2021

4:00 PM - 5:00 PM

Abstract

Motivated by questions from computational biology, we study a combinatorial classification of finite metric spaces by means of a new polyhedral invariant introduced by Vershik in 2010: the metric space's ``fundamental polytopes''. These originate from the theory of optimal transport (where they are often named after Wasserstein or Kantorovich-Rubinstein) and have recently found applications in a host of different contexts, from algebraic statistics to tropical geometry to the theory of reaction networks. Nevertheless, the most basic questions on their structure remain to date unanswered.
In this talk I will illustrate our motivation and explain the basics about such polytopes. No special prior knowledge is required.