

Distance, Strong Convexity, Flagness, and Associahedra (in person)

Thursday, December 2, 2021 4:50 PM (50 minutes)

One can always transform a triangulation of a convex polygon into another by performing a sequence of edge flips, which amounts to follow a path in the graph G of the associahedron. The least number of flips required to do so is then a distance in that graph whose estimation is instrumental in a variety of contexts, as for instance in computational biology, in computer science, or in algebraic topology. On the other hand, it is known that paths in G correspond to a certain kind of 3-dimensional triangulation. This talk is about the recent proof that these 3-dimensional triangulations are flag when the corresponding path is a geodesic. This result, that provides a new powerful tool to study the geometry of G , can be thought of as a 3-dimensional analogue of a well-known strong convexity property of G . Several consequences on the computation of distances in G and on strong convexity in related graphs will be discussed. This talk is based on joint work with Zili Wang (Dartmouth College).

Presenter: POURNIN, Lionel (LIPN, Paris-North University)