ID de Contribution: **4** Type: **Non spécifié**

Eigenvalue methods for sparse tropical polynomial systems

lundi 21 octobre 2024 10:45 (45 minutes)

In this talk, we develop a tropical analogue of eigenvalue methods in order to effectively compute the solution set of tropical polynomial systems. Relying on the connection between tropical linear systems and mean payoff games, we show that this solution set can be obtained by solving parametric mean-payoff games, arising from approriate linearizations of the tropical polynomial system relying on a tropical Null- and Positivstellensatz and using tropical Macaulay matrices. We present two approaches: a first one based on a dichotomic search, which simply allows one to certify the solvability of a tropical polynomial system, and a second, more elaborate approach, based on homotopy path-following, allowing one to compute projections of the solution set onto any coordinate.

Orateur: BÉREAU, Antoine (CMAP, École Polytechnique, Inria)