Abstract:

In recent years many online problems have been studied in the setting "with delay", where incoming requests do not have to be served immediately, but can be delayed and served together at a reduced cost. Delaying comes with a certain penalty though: it incurs a waiting cost equal to the difference between the request arrival and its serving time.

The problems studied in this framework include many server variants and network design problems such as matching, Steiner forest, or facility location. While many clever approaches have been proposed, their competitive ratios in general metric spaces are at least logarithmic.

In this talk, I will present an algorithm for the online facility location with delays that beats this logarithmic barrier (albeit for linear delays only). It is inspired by greedy algorithms for the offline case and analyzed using a sequence of factor-revealing LPs.