

SEMINARI I DEPARTAMENTIT TË MATEMATIKËS

“Math UP Seminar”

Kemi kënaqësinë t’ju njoftojmë se ligjërata e radhës në kuadër të Seminarit të Departamentit të Matematikës në FSHMN

ka folës:

Dr. Gramoz Goranci (ETH)

Orari: 12 janar 2023, 13:00—14:00 (online)

Titulli: Vertex sparsification in dynamic algorithms and beyond

Abstrakti: In the era of big data, there has been an ever-growing interest in designing fast algorithms. In classic algorithm design, the input data is revealed upfront, and the goal is to design algorithms that run in near-linear time in the size of input. However, in many real-world applications involving graphs, the input is subject to frequent changes. This motivates the study of dynamic graph algorithms, which are data structures that maintain relevant graph information under vertex/edge updates.

In this talk, we’ll discuss a general algorithmic tool for designing dynamic graph algorithms known as vertex sparsification. This is a compression paradigm that reduces large graphs into smaller ones while provably preserving properties or features of interest. In particular, we show that black-box efficient constructions of vertex sparsifiers and their data-structure variants lead to dynamic maintenance of effective resistances on graphs. We will also briefly discuss the implications of this technique in dynamically maintaining Laplacian systems and maximum flows.

Seminari mbahet në anglisht dhe organizohet për një audiencë të gjerë (studentët e vitit të parë janë të mirëseardhur!). Për t’i marrë detajet e qasjes online, ju lutem na shkruani në adresën mathupseminar@gmail.com.