Institut für Diskrete Mathematik

Friday 28th April 16:30

BE01, Steyrergasse 30

Fast construction on a restricted budget

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We introduce a model of a controlled random graph process. In this model, the edges of the complete graph K_n are ordered randomly and then revealed, one by one, to a player called Builder. He must decide, immediately and irrevocably, whether to purchase each observed edge. The observation time is bounded by parameter t, and the total budget of purchased edges is bounded by parameter b. Builder's goal is to devise a strategy that, with high probability, allows him to construct a graph of purchased edges possessing a target graph property P, all within the limitations of observation time and total budget.

We analyze this model in the context of several graph theoretic properties such as minimum degree, Hamiltonicity, and the containment of fixed-size trees and cycles.

Joint work with Alan Frieze and Peleg Michaeli.

The talk will be aimed at a general combinatorial audience.