1154-05-2440 **Emina Soljanin*** (emina.soljanin@rutgers.edu), Rutgers University, Piscataway, NJ 08854.
Load Balancing Properties of Codes and Matching Problems on Graphs. Preliminary report.

There are k files to be stored (redundantly) across n servers. We assume that $n \geq k$ and that files are mathematically elements of some finite field, e.g., bits. Each server can store a certain number of linear combinations of files (storage constraint), and can serve a limited number of users (computing jobs) simultaneously (bandwidth constraint). We are interested in 1) designing redundancy schemes that maximize the number of users that can be concurrently served by the system as their requests for the files vary, and 2) evaluating the the number of users that can be concurrently served by the system implementing a particular coding scheme. These problems, in several ways, generalize the batch coding problem, where the goal is to minimize the worst case maximal load on any of the n servers, where the load on a server is measured by the number of bits read from it, while also minimizing the total amount of storage used. The talk will describe equivalence between the posed problems and various matching questions in graph theory. (Received September 17, 2019)