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Weiqli Li, Zhiying Wang* (zhiying@uci.edu) and **Hamid Jafarkhani**. *Repairing Reed-Solomon Codes*.

Reed-Solomon (RS) codes are widely used in distributed storage systems. In this talk, we study the repair bandwidth and sub-packetization size of RS codes. The repair bandwidth is defined as the amount of transmitted information from the surviving storage nodes to a failed node. The RS code can be viewed as a polynomial over a finite field $GF(q^\ell)$ evaluated at a set of points, where ℓ is called the sub-packetization size. Smaller bandwidth reduces the network traffic in distributed storage, and smaller ℓ facilitates the implementation of RS codes with lower complexity. In this work, we present code constructions and repair schemes that accommodate different sizes of the evaluation points. These schemes provide a flexible tradeoff between the sub-packetization size and the repair bandwidth. In addition, we generalize our schemes to manage multiple failures. (Received September 20, 2018)