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Daniel Valvo* (vdaniel1@vt.edu), 1001 S Main St, Blacksburg, VA 24060. *Repair schemes for augmented Cartesian codes.*

A distributed storage system stores a file across multiple storage nodes. Methods of encoding the file such that if one or more of the storage nodes fails, the remaining nodes can recover the missing data are highly relevant. In 2017, Guruswami and Wooters introduced a linear exact repair scheme for Reed-Solomon codes. Their repair scheme is capable of exactly repairing a single failed node with low bandwidth. From this foundation, many authors, ourselves included, have worked to extend the idea to repair single and multiple erasures in different contexts. In this talk, we will share recent developments in this area, including multiple ways to extend the linear exact repair scheme framework to repair single and multiple erasures in Reed-Muller codes to augmented Reed-Muller codes and certain other families of evaluation codes. We will also discuss ways to optimize the codes and linear exact repair schemes in these contexts as well as compare these schemes to existing schemes in terms of their rate and bandwidth. (Received August 07, 2021)