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## Space-Time Network Codes for Physical Layer Distributed Storage

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Cloud storage has emerged in recent years as an inexpensive and scalable solution for storing large amounts of data and making it widely available to users. The growing success of cloud storage has been accompanied by new advances in the theory of erasure codes for such systems, namely the application of network coding techniques for distributed data storage and the theory of regenerating codes introduced by Dimakis et al., followed by a large body of further work in the literature. However, a majority of the results achieved exclusively concern the network layer, assuming either a perfect error-free channel or a simple bit-flip error/bit erasure scenario. Surprisingly few initiatives have been taken towards the physical layer functionality, e.g., how to protect the data transmission following a data reconstruction or node repair request when communication takes place over a wireless channel. Isolated from the storage point of view, on the other hand, wireless communications research has matured over the past two decades. The aim of this talk is to draw these two aspects together and present a tentative protocol for space-time coded storage reconstruction and repair transmission based on previous work on multi-antenna (MIMO) multiple access channels (MAC).

Based on joint work with David Karpuk.

### References:

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