2. Low-complexity reduced feedback scheme in MIMO broadcast channels
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Multi-antenna multi-user downlink transmission can provide a substantial gain in system throughput and performance compared to the single-antenna counterpart by using space-division multiple access (SDMA) technique. However, the optimal performance depends on the availability of full channel state information (CSI) at all communication nodes, which is impractical in most scenarios.

In this project, we consider a downlink communication where one base station (BS) transmits to two mobile stations (MSs), where all of them are equipped with multiple antennas. The CSI is estimated at each MS and, after some processing, is fed back to the BS. We will develop a low-complexity reduced feedback scheme, such that the rate of the feedback channel is limited to a practically small number and the algorithm complexity is at the same level of direct CSI feedback.