EE 6880: Topics in Signal Processing - Space-time Coding and Signal Processing for Wireless Communications

Chapter 6: Miscellaneous Topics

- Layered space-time coding schemes
- Linear dispersion space-time codes
- Turbo processing for coded MIMO
- Large-system asymptotic analysis for MIMO
- MIMO capacity with no CSI at either transmitter or receiver
- Multiuser MIMO capacity
- And more ....

References:

♢ *Layered space-time:*

22. V. Tarokh, A. Naguib, N. Seshadri, and A.R. Calderbank. Combined array processing and space-time coding. *IEEE Trans. Inform. Theory*, 45(4):1121 –1128, May 1999.
23. H. El Gamal and A.R. Hammons. A new approach to layered space-time coding and signal processing. *IEEE Trans. Inform. Theory*, 47(6):2321–2334, Sep. 2001.

♢ *LD codes:*

24. B. Hassibi and B.M. Hochwald. High-rate codes that are linear in space and time. *IEEE Trans. Inform. Theory*, 48(7):1804–1824, July 2002.

♢ *Turbo MIMO:*

25. G. Bauch, J. Hagenauer, and N. Seshadri. Turbo processing in transmit antenna diversity systems. *Annals of Telecommunications*, 56(7-8):455–471, Aug. 2001.
26. B.M. Hochwald and S. ten Brink. Achieving near-capacity on a multiple-antenna channel. Pre-print
27. S. ten Brink, G. Kramer, and A. Ashikhmin. Design of low-density parity-check codes for multi-antenna modulation and detection. Pre-print.

♢ *Large-system analysis:*

28. E. Biglieri, G. Taricco, and A. Tulino. Performance of space-time codes for a large number of antennas. *IEEE Trans. Inform. Theory*, 48(7):1794-1803, July 2002.
29. B.M. Hochwald, T.L. Marzetta, and V. Tarokh. Multi-antenna channel hardening and its implication for rate feedback and scheduling. Pre-print.

◇ *MIMO capacity with no CSI at Tx & Rx:*

30. B.M. Hochwald and T.L. Marzetta. Unitary space-time modulation for multiple-antenna communications in Rayleigh flat fading *IEEE Trans. Inform. Theory*, 46(2):543-564, Mar. 2000.

◇ *Multiuser MIMO:*

31. G. Caire and S. Shamai. On the achievable rates in a multi-antenna broadcast channel. Pre-print.
32. S. Vishwanath, N. Jindal, and A. Goldsmith. Duality, achievable rates, and sum-rate capacity of Gaussian MIMO broadcast channels. Pre-print.