Selected Features

- Transmission modes
  - Single transmit antenna
  - Closed Loop Spatial Multiplexing (CLSM)
  - Multi-User MIMO
- Up to 4x4 MIMO transmissions
  - including receive diversity for Single transmit antenna mode
- support for multiple base stations
- support for multiple users via scheduling
- Scheduling
  - fixed scheduler
  - round robin scheduler
  - max. throughput scheduler
  - approx. max. throughput scheduler
  - best CQI
  - fixed MU MIMO
  - max MU MIMO
  - random MU MIMO
  - greedy MU MIMO
- normal and extended Cyclic Prefix length
- Block fading and Fast fading simulations
  - independent and correlated time variant channel traces
- SRS configuration selectable
- DFT spreading selectable
- Channel Estimation methods
  - LS based (LS_AV, LS_SAV, LS_QS)
  - DFT based
  - MMSE estimator
  - 2D MMSE estimator
• Channel Interpolation and Channel Prediction methods
  - flat
  - linear
  - pchip (cubic)
  - spline
  - MMSE
  - 2D MMSE

• Quantized CSI feedback
  - CQI, RI, PMI
    - downlink feedback channel delay adjustable

• BS Receiver types
  - ZF
  - MMSE
    - Interference-aware MMSE (IAMMSE) for inter-cell interference

• Implemented channel models
  - AWGN, flat Rayleigh
  - VehA, VehB, EVehA
  - TU, ETU, RA, HT
  - ePDP, winner II
  - TR 36.873 - 3D channel model

• Channel averaging for faster simulations

• Channel model interpolation methods
  - Shift to nearest neighbor
  - Sinc interpolation

• Fully parallel computing possible (with MATLAB parallel toolbox)

Performance Metrics

Each metric provided with confidence intervals

• User/Cell Throughput (coded/uncoded)
• User Bit Error Ratio (BER) (coded/uncoded)
• User/Cell Block Error Ratio (BLER)
• User channel estimation error (MSE)
• User channel prediction error (MSE)
• User Peak-to-Average Power Ratio (PAPR)