2021 無線通訊系統 Project

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Angular-domain ULA Radiation/Reception

- According to the angular-domain model, evaluate the Radiation and Reception patterns of uniform linear arrays (ULA)

- **Input parameters:**
  - The number of antenna elements N
  - The normalized antenna separation Δ (normalized to the wavelength λ_c)
  - SIMO (reception) or MISO (radiation)
  - The radiation or reception directions of the desired signal (signals)
  - The radiation or reception direction of the interference signal
- **Output results:**
  - The angular-domain radiation/reception basis
  - The correlation between different basis vectors
  - The power gain pattern of the ULA
  - The power gain of the desired signal for using different radiation beams
  - The signal-to-interference power ratio (SIR) for using different beams
  - The SIR of multiple input signals (multiple reception directions) with diversity combining (considering fading for the signals and interferences)
  - … (Any results that can present your work better.)
- Due: **1/20** (Mail your program, with proper comments, and report to TA)