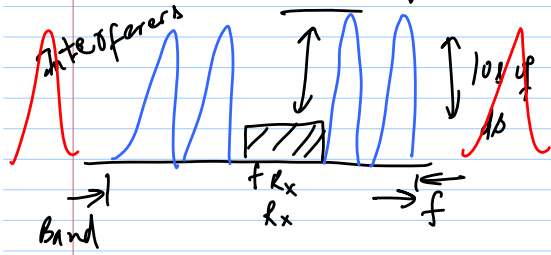


13-8-13

Lec 5

Receiver Design



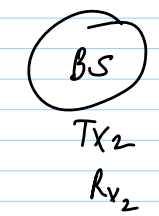
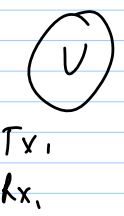
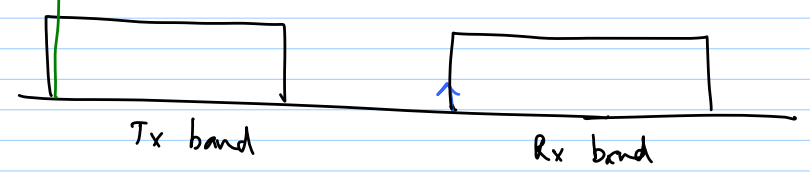
- 1) Other channel
- 2) Tx signal
- 3)

1) Channel: spectrum of freq. band / every user has 1 channel

TDMA - Mux in time

FDMA - Mux in freq. domain

2) band - aggregate of all user channels



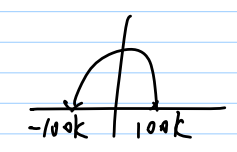
→ $Tx_2 = Rx_1$
→ $Tx_1 = Rx_2$

- * Rx band of User = Tx band of BS & vice versa
 - * Tx & Rx bands are the same for all users
- In band interferers & OOB interferers

Rx arch.

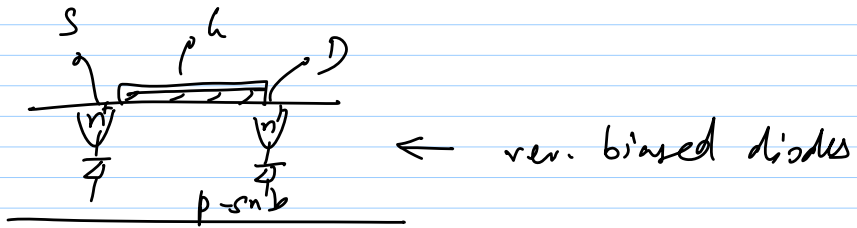
- 1) Tune to band of interest (BPF)
 - OOB interferers are attenuated
 - tuning to channel requires high Q tunable filters

- 2) LNA - low noise amplifier
- 3) Mixer - shifts freq. band to lower freq. (crt design easier @ low. freq.)
- 4) additional amp- & filtering



Noise Sources

- 1) Shot Noise — diodes, BJTs
dep. on DC current;



- 2) Resistor thermal noise — R
3) Flicker noise — MOSFET, BJTs
4) MOSFET thermal noise — MOSFETs

