

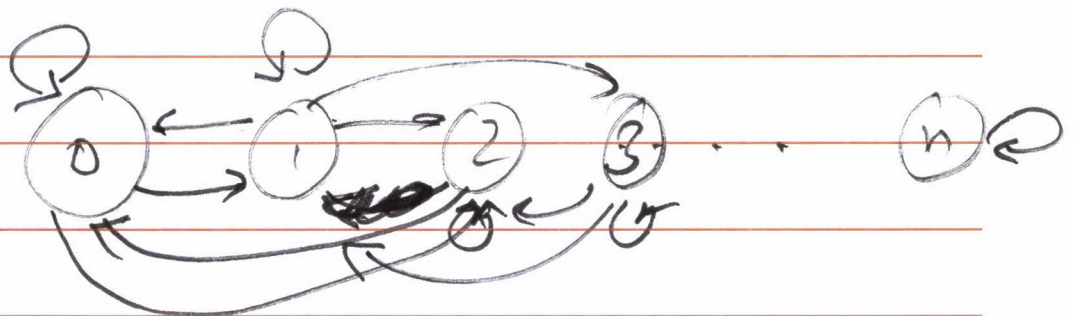
Radio Propagation in Wireless Channels

- Propagation models:
 - simple path loss
- fading distributions / Shadowing distributions:
 - Log-normal
 - Rayleigh
 - Nakagami-m

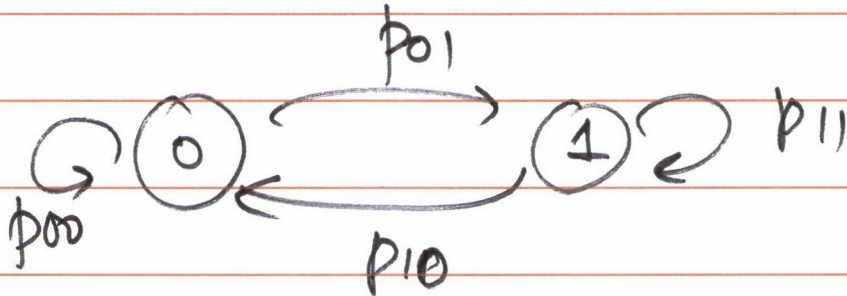
↑ - Outage Prob.
- Average Prob. of error
- Time varying fading model

- Markovian fading process

slow vs. fast fading:
depends on mobility / dynamics
in the environment



2-state Markov Channel



$$\pi_0 = \frac{p_{10}}{p_{10} + p_{01}} \quad \pi_1 = \frac{p_{01}}{p_{01} + p_{10}} = 1 - \pi_0$$

"Slow fading" $p_{01} = 0.2$ & $p_{10} = 0.2$

"fast fading" $p_{01} = 0.9$ & $p_{10} = 0.9$

$$\left[\begin{array}{l} \pi_1 = 1/2 \\ \pi_0 = 1/2 \end{array} \right]$$