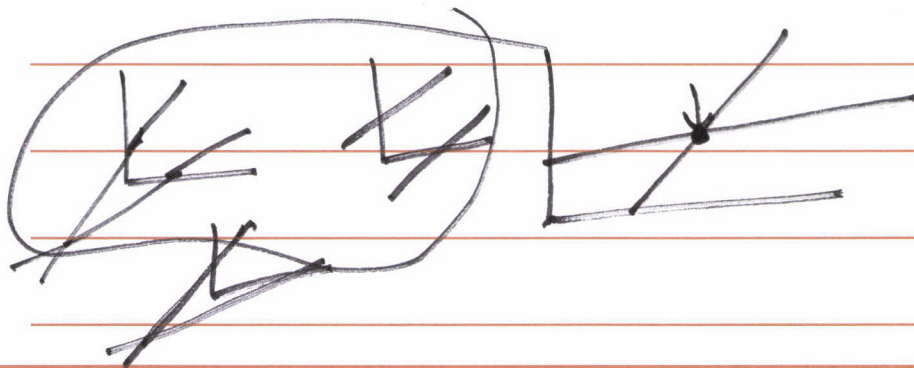


Power Control

Independent channels, allocating power levels to satisfy SINR threshold in fixed rate radios.



Corrected expressions for optimal power allocation

$$P_1^* = \frac{N \left(\frac{1}{g_{21}} + \frac{\theta}{g_{22}} \right)}{\left(\frac{g_{21}}{g_{21}\theta} - \frac{g_{12}}{g_{22}} \right)}$$

$$P_2^* = \frac{N \left(\frac{1}{g_{12}} + \frac{\theta}{g_{11}} \right)}{\left(\frac{g_{22}}{g_{12}\theta} - \frac{g_{21}}{g_{11}} \right)}$$

Generalize to M links

$$\frac{P_i g_{ii}}{\sum_{\substack{j=1 \\ j \neq i}}^M P_j g_{ji}} + N \geq \theta \quad \forall i$$

$$P_i g_{ii} \geq \sum_{\substack{j=1 \\ j \neq i}}^M \theta g_{ji} P_j + N\theta$$

$$P_i g_{ii} - \sum_{j=1}^M \theta g_{ji} P_j \geq N\theta \quad \forall i = 1:M$$

At the minimum power vector solution (if it exists), all of these become equalities.