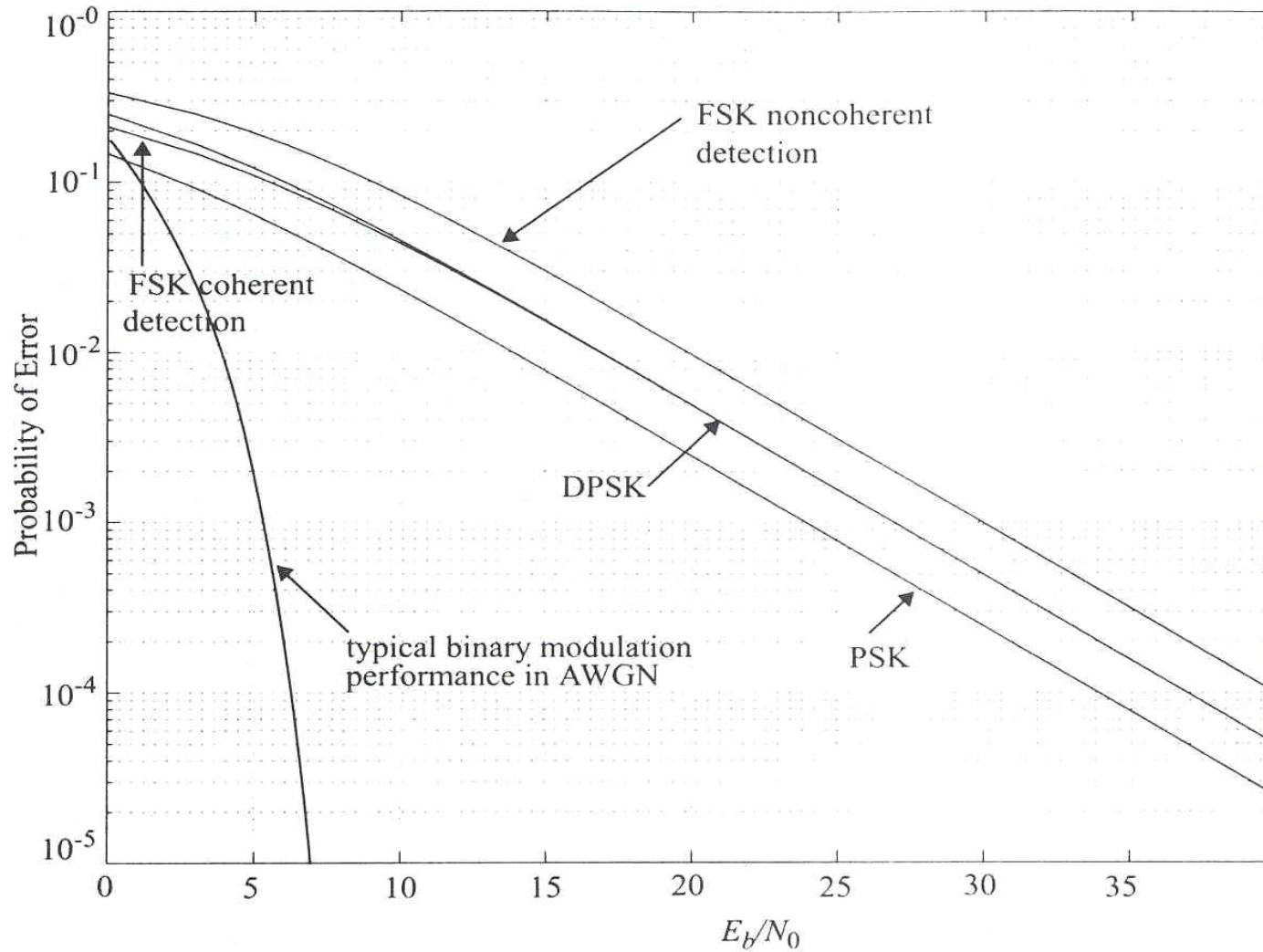


Análise de Desempenho de Modulações Digitais em Canais com Multipercursos

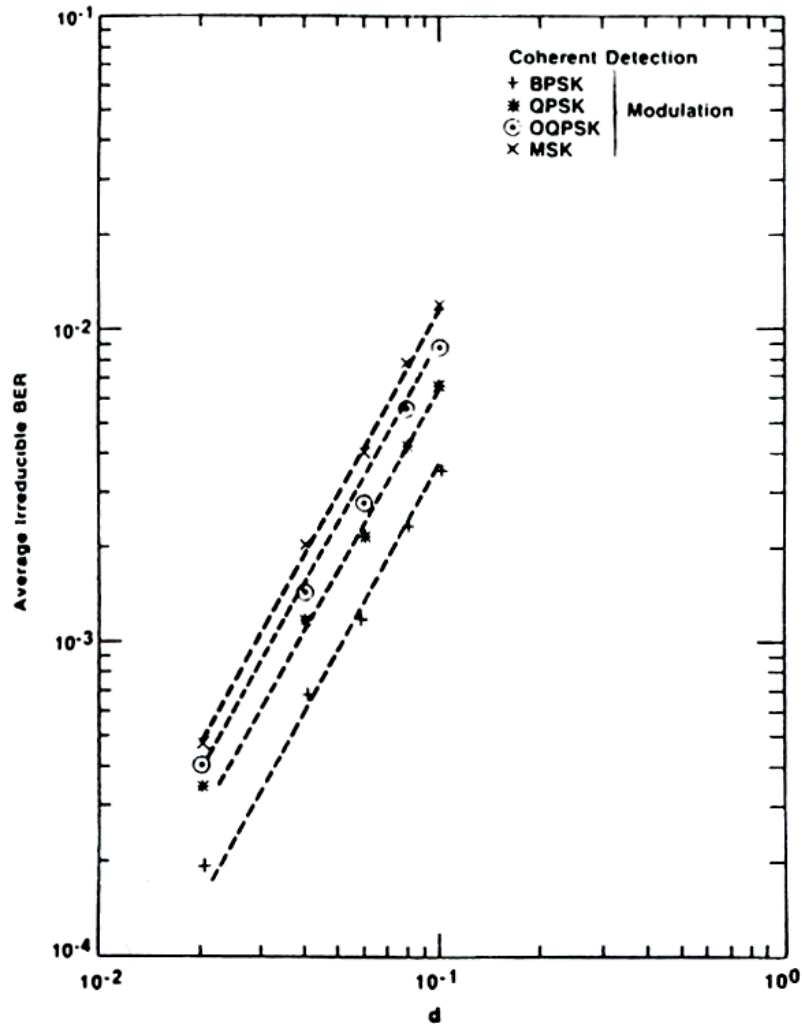
BER: Canal Plano



Patamar de erro irreduzível – *error floor*

- São patamares onde um aumento na relação sinal-ruído não diminui a probabilidade de erro do sistema.
 - Nos canais seletivos esses patamares ocorrem principalmente pelos erros causados pela interferência intersimbólica
 - Nos canais planos, ocorrem principalmente devido a modulação em frequência aleatória causada pelo espalhamento Doppler

BER: Canal Seletivo



$$d = \frac{\sigma_{rms}}{T_S}$$

Para um canal plano:

$$T_S \geq 10 \cdot \sigma_\tau$$

Figure 6.54 The irreducible BER performance for different modulations with coherent detection for a channel with a Gaussian shaped power delay profile. The parameter d is the rms delay spread normalized by the symbol period [from [Chu87] © IEEE].

Canal plano com Interferência co-canal

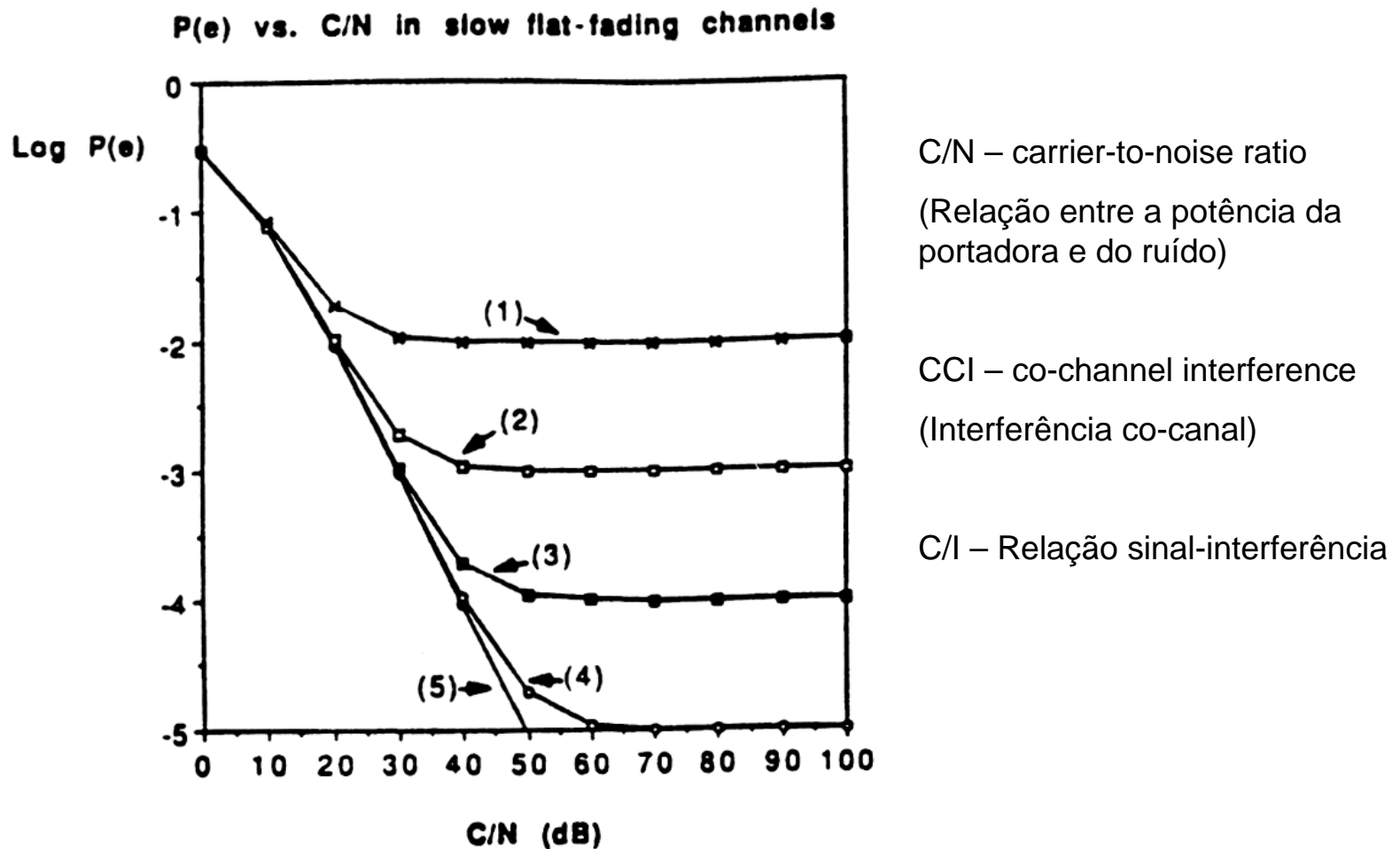


Figure 6.57 BER performance of $\pi/4$ DQPSK in a slow flat-fading channel corrupted by CCI and AWGN. $f_c = 850$ MHz, $f_s = 24$ kbps raised cosine roll-off factor = 0.2, $C/I =$ (1) 20 dB, (2) 30 dB, (3) 40 dB, (4) 50 dB, (5) infinity [from [Liu91] © IEEE].

BER: Canal Plano Variante

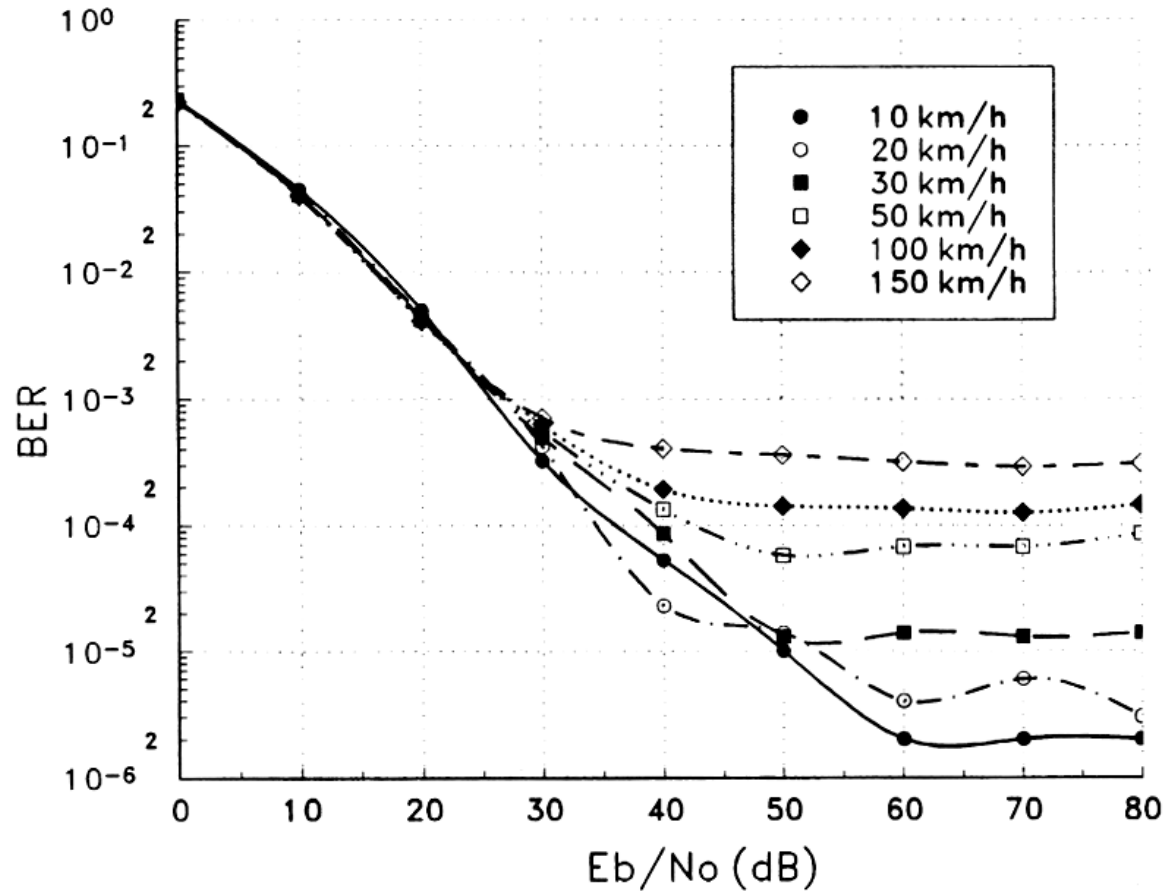
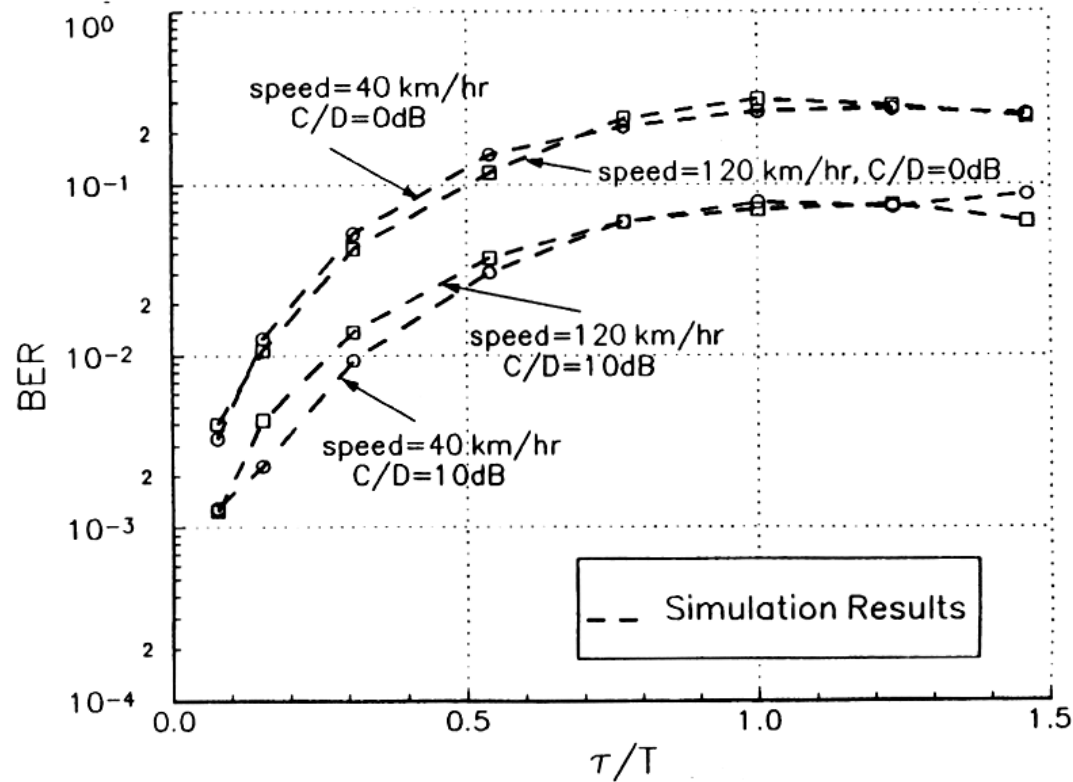


Figure 6.58 BER performance versus E_b/N_0 for $\pi/4$ DQPSK in a Rayleigh flat-fading channel for various mobile speeds: $f_c = 850$ MHz, $f_s = 24$ ksps, raised cosine rolloff factor is 0.2, $C/I = 100$ dB. Generated by BERSIM [from [Fun93] © IEEE].

BER: Canal Seletivo Variante



C/D – Relação da potência entre o primeiro e o segundo raio.

Figure 6.59 BER performance of $\pi/4$ DQPSK in a two-ray Rayleigh fading channel, where the time delay τ , and the power ratio C/D between the first and second ray are varied. $f_c = 850$ MHz, $f_s = 24$ kps, raised cosine rolloff rate is 0.2, $v = 40$ km/hr, 120 km/hr $E_b/N_0 = 100$ dB. Produced by BERSIM [from [Fun93] © IEEE].