

Definition 11.13 A rate R is (asymptotically) achievable for a continuous memoryless channel if for any $\epsilon > 0$, there exists for sufficiently large n an (n, M) code such that

$$\frac{1}{n} \log M > R - \epsilon$$

and

$$\lambda_{max} < \epsilon.$$

Theorem 11.14 A rate R is achievable for a continuous memoryless channel with input constraint (κ, P) if and only if $R \leq C(P)$, the capacity of the channel.