

LEARNING OBJECTIVES - Lecture 18 (Continuous-Valued Channels)

After attending lecture and completing the associated readings, you should be able to:

1. Define and compute differential entropy, e.g. for Gaussian sources.
2. Derive the form of maximum entropy distributions under various moment constraints.
3. State and prove the capacity theorem for average-power constrained AWGN channels.
4. Perform waterfilling for optimal power allocation of parallel Gaussian channels.
5. State that most channels one can make up will have a capacity-achieving input distribution supported on a finite set of mass points: the average-power constrained AWGN channel is unusual.