A Construction of Codes with Exponential Error Bounds on Arbitrary Discrete Memoryless Channels

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Abstract

This paper proposes an explicit construction of codes achieving Shannon's capacity for arbitrary discrete memoryless channels. The proposed code is obtained by concatenating variable inner codes and an algebraic geometry code. Further, we clarify that the proposed code achieves the error exponent obtained by Forney for concatenated codes.

Key Words: **concatenated code, algebraic geometry code, Justesen code, reliability function, discrete memoryless channel**