

## A Physical Theory of Information vs. a Mathematical Theory of Communication

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**Abstract :** This article introduces a general notion of physical bit information that is compatible with the basics of quantum mechanics and incorporates the Shannon entropy as a special case. This notion of physical information leads to the Binary data matrix model (BDM), which predicts the basic results of quantum mechanics, general relativity, and black hole thermodynamics. The compatibility of the model with holographic, information conservation, and Landauer's principles are investigated. After deriving the "Bit Information principle" as a consequence of BDM, the fundamental equations of Planck, De Broglie, Beckenstein, and mass-energy equivalence are derived.

**Keywords :** physical theory of information, binary data matrix model, Shannon information theory, bit information principle

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