

Embeddings of statistical manifolds

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I shall present a theorem stating that any compact (possibly with boundary) statistical manifold (M, g, T) admits an isostatistical embedding into the statistical manifold $Cap_+(\Omega)$ of all positive probability measures on a finite sample space Ω provided with the Fisher metric and the Amari-Chentsov tensor. Furthermore, any finite dimensional noncompact statistical manifold (M, g, T) admits an embedding I into the space $Cap_+(N^+)$ of all positive probability measures on the set N^+ of all natural numbers such that g is equal to the Fisher metric defined on $I(M)$ and T is equal to the Amari-Chentsov tensor defined on $I(M)$. Hence any statistical manifold is a statistical model.