Quantum Purity as an Information Measure and Nernst Law

Angelo Plastino and F. Pennini [(a)]
Universidad Nacional de La Plata

We propose to re-express Nernst law in terms of a suitable information measure (IM) parameter. This is achieved by dwelling on the idea of adapting the notion of purity in the case of a thermal Gibbs environment, yielding what we might call the "purity" indicator (which we denote by the symbol D in the text). We find it interesting to define an extension of this D IM indicator in a classical context. This generalization turns out to have useful conceptual consequences when used in conjunction with the classical Shannon entropy S. Implications for the Nernst law are discussed.