Review of: "A Law for Irreversible Thermodynamics? Synergy Increases Free Energy by Decreasing Entropy"

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Thermodynamic description of complex systems definitely is an interesting topic. This brief overview presents only very small pieces selected from (author´s) work, mainly verbally, without convincing derivations, justifications, proofs. I always wonder why more or less complex systems are attempted to be described by thermodynamics developed for uniform bodies. OK, this could have some value as a gross (coarse-grained?) description, but I would like to see clear demonstrations and justifications. Non-equilibrium thermodynamics of non-uniform bodies, for example, works on fields, energy or entropy are field quantities, which should address the spatial complexity of non-uniform bodies. Then, there is no single value of entropy or energy for the whole non-uniform body. There are even no “laws” but simply balances. The ball-gun powder example is nice but those are completely different bodies, technological realizations and the relevant characteristics differ, of course. Although the word entropy is used in various areas of (not only) science I am not sure that this is still the same thing, quantity; more probably, the same wording is used to describe different issues and confusions may rise, see, for example, I. Müller, A History of Thermodynamics, Springer 2007, p. 126, 159f. In summary, I understand this contribution as a signpost to author´s work which should be studied to understand what is to be said.