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Information Physics. Hopes and Weak Points

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In the last few years a number of works, such as the monograph by T.Stonier "Information and the internal structure of the universe. An exploration into information physics", apppeared. In these works information is regarded as a property of the Universe, which is as realistic as matter and energy. Special attention is given to particles of information - the infons.
The paper offers a critical analysis of selected parts of this work and shows that some of them contradict the basic physical laws. It is also shown that information does not need any special media, such as the infons. (Authors)

In his book "Information and the Internal Structure of the Universe", T.Stonier regards information as a primary physical value like matter and energy and assumes the existence of particles of information, which he calls 'infons'. He discusses also questions of the use and processing of information in the human brain, the human society, in biological systems and in inorganic nature. His work holds many original ideas, which merit consideration and use.

However, to our thinking, some parts of the work of Stonier contradict modern physical laws. In our paper we discuss only the author's hypothesis about special information-carriers, the infons, introduced by analogy with quanta of matter and energy.

Now, it is generally known that, unlike such ponderable things as matter and energy, entropy and, therefore, information cannot be divided into quanta.

Any information has a material carrier (paper, magnetic tape, electromagnetic and audio media, etc.) and it is, therefore, not necessary to introduce an additional quantum field.

Looking into questions of information storage on immovable carriers (paper, magnetic or optical disks), we do not find an answer to the question as to what happens to the infons.

When the signal is propagated along a broken route (for example, reflections of radiowaves from the ionosphere), it is not clear along which route (the straight or broken route) the infons will travel, and why.

For radio and optical waves, the number of carriers (photons) which reach the recciver, diminishes in inverse proportion to the square of the distance. (This is the consequence of purely geometrical views.)

The quantity of received information is governed by another law (according to the Shannon formula).

In the optical band it is possible to realize the regime of power economy, when the information is transmitted by the size of the intervals between the received photons, a thing which does not correspond with the infon theory.

The above-mentioned examples show that the conception of infons contradicts some theoretical and practical views, and it is not in any way justified.