

Editorial

Entropy Enters Its Fourth Year

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In a vivid statement that has become part of physics' folklore, Eddington expressed an almost mystical view of the second law [1]:

The law that entropy always increases – the second law of thermodynamics – holds, I think, the supreme position among the laws of nature. If someone points out that your pet theory of the universe is in disagreement with Maxwell's equations – then so much the worse for Maxwell's equations. If it is found to be contradicted by experiments – well, these experimentalists do bungle things sometimes. But if your theory is found to be against the second law of thermodynamics I can give you no hope; there is nothing for it but to collapse in deepest humiliation (p. 74).

For Jaynes [2], however, entropy was nothing but

An anthropomorphic concept, not only in the well-known statistical sense that it measures the extent of human ignorance as to the micro-state. *Even at the purely phenomenological level, entropy is an anthropomorphic concept.* For it is a property, not of the physical system, but of the particular experiments you or I chose to perform on it (italics original).

Whether a supreme law or a mere artifact of human ignorance, the second law featured in some of the most heated arguments in modern physics. The Boltzmann-Loschmidt controversy [3] [4] pondered its logical foundations. The Einstein-Ritz controversy [5] addressed its relation to the electromagnetic time-asymmetry. The Hawking-Penrose controversy [6] debates whether entropy increase is a consequence of the universe's initial conditions or perhaps it has a microscopic origin hidden beneath the apparently symmetric physical laws. And while theoretical physicists argue about entropy's origins, natural, life, behavioral and social sciences study its myriad manifestations at all levels of complexity. Entropy is neatly captured in the words with which the Devil introduces himself to Faust:

*Part of Nature that always would
Create evil, but always produces good.*

With this new 2002 volume, *Entropy* is entering its fourth year. Since its establishment it has secured itself a respectable position as a journal devoted to the experimental and theoretical study of all aspects of entropy. As an online journal, it offers efficient and fast processing of articles without paper consumption (thereby reducing the entropy cost for our strained biosphere!). At the same time, its peer reviewing is just as rigorous as that of offline scientific journals, thereby maintaining a high scientific level. The availability of reprints is, of course, unlimited, guaranteeing wide readership for our authors.

Of course, *Entropy* can accomplish these goals only with the help of its readers. First, we need help with the laborious, time-consuming task of reviewing papers. Experts in any entropy-related field who will offer themselves as reviewers may eventually join our editorial board and shape the journal's future development. Second, please consider *Entropy* for your next contributions. The revised instructions for authors [7] are designed to make the reviewing process as efficient and as comfortable as possible for all parties.

Entropy's chief editor, Professor Lin, has also associated the journal with some relevant international conferences. Thus, papers read at the Conference on Interdisciplinary Applications of Information Theory, held at the Banach Center, Warsaw, on May 2001, were published in the last issues of *Entropy*. Another conference, organized by *Entropy*, is planned to take place in 2003 [8].

With these past accomplishments and future plans, we can all look forward to many years of scientific productivity.

References and Notes

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6. Hawking, S.; Penrose, R. *The Nature of Space and Time*. Princeton: Princeton University Press. 1996.
7. See the <http://www.mdpi.org/entropy/publguid.htm> website.
8. <http://www.mdpi.org/entropy2003/>.

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