

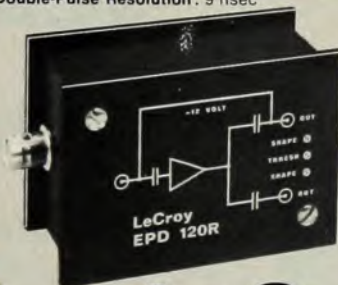
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FEATURES

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Outputs: Two > -800 mV into 50 Ω during output (one with power supply); positive compensation pulse follows normal output.



Output Rise & Fall Times: 2.5 nsec.
Slewing: approx. 1 nsec.
Input/Output Delay: approx. 7 nsec.
Package: RF-shielded box; 8.3 cm x 5.8 cm x 4 cm.

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letters

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HERMAN HOERLIN

Consultant to the Los Alamos Scientific Laboratory

4/27/78

Los Alamos, N.M.

No universal equation

I read the letter by Gerald Lebau (March 1977, page 82) concerning the letter by David Lazarus with amused interest. In spite of Lebau's references to philosophers, it is not clear that Lebau is familiar with a rather famous result of the logician Kurt Gödel,¹ who in 1931 proved that every deductive system that can be represented within arithmetic is either incomplete or inconsistent. At the moment, no one has any idea of what a proof could be that is not arithmetically representable. Since this includes all the reasoning done in physics, I believe it is inconceivable that "it will not be long before a new and correct model of the physical universe will be found." In fact, Gödel's result has so well destroyed any hope for anything like "finding the universal equation" that this has not been "the goal of theoretical physics" for a rather long time now. On the contrary, it appears that enough remains to keep theoretical physicists employed forever!

Reference

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FRANKLIN E. SCHROECK, JR.

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4/5/78

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THE AUTHOR RESPONDS: Being aware that a mathematician once proved heavier-than-air machines can't fly, I'm not too concerned with Gödel's proof. However, Franklin Schroeck has raised precisely the targeted issue. Where I spoke of "a new and correct model of the physical universe" he cited the impossibility of "finding the universal equation." But mathematics and equations are insufficient. Until we understand the physical realities (the metaphysics) to which the symbols refer, equations don't model anything at all.

Absence of an accurate physical model allowed forbidden mathematical con-

structions to slip into the heart of modern theory. Consider the direct and inverse transformations for the physics of either Voigt, Lorentz, Poincaré or Einstein. These emerged from mathematical treatment of various physical models. Given the correct such model, "forever" should only take a few years.

GERALD LEBAU
Elizabeth, N.J.

Oppenheimer letters

We are preparing for publication letters written by J. Robert Oppenheimer prior to 1946. The principal archival collections have been consulted, and the edition is nearing completion. We would appreciate hearing from individuals who have, or know of, such letters.

ALICE KIMBALL SMITH
CHARLES WEINER

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Optional published refereeing

Dissatisfaction with the present system of anonymous refereeing has been both deep and widespread in recent years. The bulk of this dissatisfaction has been directed at what many have felt are excessive variations in refereeing standards leading in the worst cases to the rejection (or acceptance) of a manuscript on the basis of poor or possibly incorrect referee reports. It is not, however, the refereeing process which is at fault but rather the undue weight attached to the occasional inferior reports themselves.

A simple means of retaining the generally acknowledged advantages of the refereeing process while at the same time removing the worst effects of variations in refereeing standards would be to adopt a system of optional published refereeing in which referee reports would function essentially as supplementary information to the reader and where the final responsibility for publishing would rest entirely on the author(s). The refereeing process itself would remain unchanged. In cases where the referee(s) were substantially in agreement with the manuscript, a simple note to this effect naming the referee(s) at the end of the manuscript would be sufficient. More difficult cases where the referee(s) (or editors) had serious reservations to the final form of the manuscript, or where the referees had conflicting opinions, could be treated simply by giving the author(s) the option of publishing the manuscript under the condition that it be accompanied by the anonymous comments of the referee(s) (or editors) without rebuttal on the part of the author(s). Individual journals could further emphasize the seriousness of the latter publications by limiting the number of times a given author or authors would

be allowed to publish a criticized manuscript although it is unlikely in practice that such a restriction would need to be invoked very often since not many authors would lightly decide to publish a manuscript which was accompanied by a thorough, objective, unanswered criticism. Authors would be running a considerable risk to their professional reputation by such publications and would be extremely hesitant to publish without a careful re-evaluation of their work. The essential point is that journals would be able to retain ample control over the quality of their publications without the necessity of any explicit approval or rejection of a particular manuscript.

The system of optional published refereeing proposed here would also lead to a significant improvement in the quality of refereeing since referees would be much better rewarded for the time and effort in producing a report whose style and content could withstand a public evaluation. This, in itself, would eliminate many of the irritations and injustices that occur under the present system. It might also require a greater effort on the part of referee(s) but the referees' or editors' task would also be correspondingly lightened since neither would be forced to make any irrevocable decision regarding the acceptance of a manuscript. The relatively few referees who, for lack of time or other reasons, still felt that they could not produce a report which they would publicly support (even anonymously), or who felt that such a system might bias them toward an uncritical acceptance of a manuscript, would always have the option of declining the refereeing assignment as usual. The quality of the work of the remaining referees would more than compensate for the initial extra effort in finding those referees who would be willing to work within the new system.

In short, a system of optional published refereeing would not only effectively eliminate the worst features of the present system but would also lead to significant improvements in the refereeing process and could be carried out using existing refereeing procedures. The advantages of such a system are great enough to warrant at least a trial period by a number of physics journals.

R. A. GORDON

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Correction

August, page 36—In Bernard Cooper's article on coal research, the sentence beginning on the 21st line from the bottom of the middle column should read: "However, such effects fall off strongly with increasing angle, and for angles from about 70° up to normal incidence, the deformation-fatigue mechanism offers basic understanding." □

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