

letters

influence the course of events. While the average reader may be amused—I am afraid that science will suffer. News should be reported fully and problems not be swept under the rug, but there is a line between reporting facts and inserting editorial opinion; in this case I feel that the line has been crossed.

JOHN P. SCHIFFER

10/84 Argonne National Laboratory

Estimating SURA's cost

The article on the SURA accelerator in September (page 55) states that the project "lacks a definite design and detailed cost estimate." As our company prepared the estimate for the accelerator, I would like to respond to this criticism.

We have prepared estimates for the first SLAC and Fermilab accelerators as well as the LAMPF linear accelerator on which approvals of these projects were based. In my opinion, the SURA design was at least as complete and more certain to operate essentially as proposed than any of the abovementioned projects.

Although the design output requires improved klystrons, such expectations are typical of accelerator project proposals. If the required improvements cannot be made, a larger number of lower-power tubes could be used or a lower but still satisfactory current output accepted.

The overall cost of large accelerator laboratories is typically two to three times the cost of the accelerator. These additional costs depend, to a considerable extent, on the amenities provided and the scale of the administrative organization to be accommodated. They also depend on the cost of the equipment required to conduct the experiments and how much of that cost is included in the cost of the project. These items may require further definition, but I see no reason for re-estimating the cost of the accelerator itself as long as the existing design is not significantly changed.

WILLIAM M. BROBECK
Brobeck Corporation

10/84

Molecular rotation spectra

The "Search and discovery" section of PHYSICS TODAY should be the place to find carefully chosen, scrupulously edited, and appropriately referenced accounts of the most important recent developments in physics. It is read by nonexperts in the field under report, and it is presumed to be objective.

"High-spin molecular rotation spectra are surprisingly simple" (July, page 17), which purports to be an account of the enormous theoretical progress that has been made toward the understanding of the vibration-rotation spectra of polyatomic molecules in the past few years, fails on all these counts.

Over the past 20 years, important advances have been made in the understanding of the vibration-rotation spectra of polyatomic molecules. Among the most important general advances has been work on molecular symmetry by Jon T. Hougen and H. C. Longuet-Higgins, and the simplification of the Hamiltonian and the discovery of the correct way to treat centrifugal distortions when analyzing spectra, both by J. K. G. Watson. None of this has been reported in "Search and discovery." The clustering of the rotational energy levels of spherical top molecules at high angular momenta (the sole topic of the July 1984 article) is an interesting, albeit rather specialized, development for which William Harter and Chris Patterson can take some credit. However, all the credit for its discovery and classical interpretation must go to A. J. Dorney and Watson.¹ This reference is not given in the article and only a passing mention (with incorrect initials for Watson) is made to it. Also, much is made of ortho-para interactions ("the violation of a hitherto sacrosanct selection rule") as if this were a new theoretical development; this is untrue and has been well understood for a great many years. It was first observed² by Irving Ozier in 1971.

It is only natural to be enthusiastic about one's research, and it can easily happen that one has an inflated view of its importance. Harter and Patterson can certainly be forgiven for presenting their research in an overly enthusiastic manner bordering on Madison Avenue, but the editors of PHYSICS TODAY must take a more balanced view.

References

1. A. J. Dorney, J. K. G. Watson, *J. Mol. Spectrosc.* **42**, 135 (1972).
2. I. Ozier, *Phys. Rev. Lett.* **27**, 1329 (1971).

PHILIP R. BUNKER

National Research Council Canada
8/84 Herzberg Institute of Astrophysics

WILLIAM G. HARTER COMMENTS: Bertram Schwarzschild, the author of the July "Search and discovery" article, did solicit and use comments from a number of experts in the field of molecular spectroscopy, including Hougen. The resulting article was judged to be a fairly balanced account of retical developments that help in visualizing complex dynamics and spectra that arise from solving various molecular Hamiltonians. It was not intended to be an exhaustive review of the

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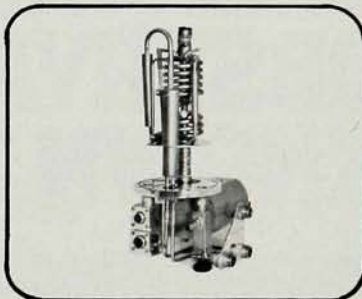
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