

LETTERS

AIP discriminatory policies

I protest the discriminatory political policies of the American Institute of Physics. I have just received a letter from the Advertising Manager of AIP rejecting an ad submitted for publication in *PHYSICS TODAY*, with the explanation, "The AIP has a standing policy of not accepting any ads that promote memberships in societies that are not member societies of the AIP." In order to make my point that AIP policies act in a politically biased way it will be necessary to quote the ad that was rejected and also to quote an ad that was accepted.

Submitted and rejected for the April 1969 issue of *PHYSICS TODAY*:

"SCIENTISTS for SOCIAL and POLITICAL ACTION, a new organization of scientists concerned with all the problems of today's world and seeking a radical redirection in the control of modern science and technology. We invite membership and active participation by concerned scientists and engineers and students in all technical fields. For further information write to the Acting Secretary of SSPA, Dr. Martin Perl, Stanford University, Stanford, California 94305."

Appeared in January 1968 *PHYSICS TODAY*, page 190:

"PROFILE of a deterrent: Although much effort at the Los Alamos Scientific Laboratory is directed toward basic research and peaceful applications of nuclear energy, the primary mission of the Laboratory is the enhancement of national security through the development and engineering of nuclear weapons.

"The hope of the Laboratory is for peace. It is our belief that the best guarantee of peace is appropriate force in the hands of those who truly want peace. The science of nuclear weapon development has advanced far beyond the primitive designs of World War II. To meet the demands of this nationally important and exacting field requires

a well trained and dedicated staff of physicists, chemists, mathematicians, engineers, and technicians.

"A limited number of opportunities exist for highly qualified scientists and engineers in Los Alamos research programs. Interested individuals are invited to send resume to Director of Personnel, Division 68-19, Los Alamos Scientific Laboratory of the University of California, Los Alamos, New Mexico. An equal opportunity employer. U. S. citizenship required."

I am drawn to the conclusion that AIP policies support "establishment" organizations and repress controversial or minority groups. I challenge the management of the AIP to explain and justify their policy in the light of the examples I have cited and with particular reference to the object and purpose of the AIP as stated on page 6 of this magazine.

CHARLES SCHWARTZ
University of California, Berkeley

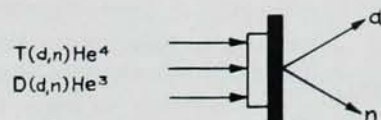
Double-humped fission

In your "Search and Discovery" item titled "New Insight Is Offered into the Fission Process" (*PHYSICS TODAY*, February, page 64) it is stated that the existence of a double-humped fission barrier appears to be the explanation for the behavior of many heavy and superheavy nuclei. This type of fission behavior was described as having been predicted in 1967 by V. M. Strutinsky,¹ who calculated shell-model corrections to the liquid-drop model by the Nilsson method, and found a second potential minimum for very heavy nuclei ($A = 230$ to 250) with the deformation parameter β between 0.5 and 0.6.

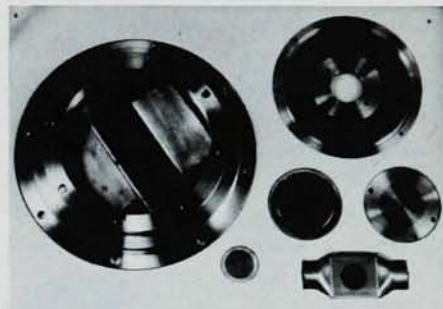
Essentially the same prediction (made, however, in a much different way) is to be found in my 1965 paper titled, "The Close-packed-spheron Theory and Nuclear Fission."² The argument in that paper involves assigning the nucleons of a heavy nucleus to three layers, the inner core, the outer core and the mantle, on the basis of the principal quantum numbers of the shell model.³ The shape of the nucleus is determined by the

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spherons in the inner core. For example, the transition from essentially spherical symmetry to prolate deformation at $N = 90$ is associated with the change from one to two spherons (tritons or helions) in the inner core.

The normal state of a heavy fissionable nucleus such as U^{236} is described as having moderate prolate deformation because of its inner core of five spherons with the configuration of a trigonal bipyramid. The structure with greater prolate deformation is described as having an inner core of four spherons on a line (figure 12 of reference 2) surrounded by an elongated outer core of 21 spherons. It was pointed out that "this configuration would need only a small additional deformation to reach the saddle point in the energy surface" (thus permitting spontaneous fission), and that fission in this mass-number region should be asymmetric, as observed, rather than symmetric.

The rather simple arguments presented in this 1965 paper lead reasonably directly to the conclusion that nuclei with A approximately 240 have two energy minima, corresponding to moderate prolate deformation and to large prolate deformation, respectively. Two structures are described also for nuclei with A in the region 200 to 220: one, essentially spherical, with a 4-spheron tetrahedral inner core and a second, with considerable prolate deformation ($\beta = 0.4$ to 0.5), with a linear inner core of three spherons. Fission of this structure is symmetric.

It was also pointed out that three structures, rather than two, are expected at about $A = 227$ —the tetrahedral inner-core structure, the linear three-spheron inner-core structure, and the linear four-spheron inner-core structure—and that accordingly the observed occurrence of both symmetric and asymmetric fission of Ra^{226} bombarded with 11-MeV protons is accounted for by the close-packed-spheron theory. The prediction was made² that nuclei such as Lw^{266} should also have three structures, including one with a linear four-spheron inner core (giving asymmetric fission) and one with a linear five-spheron inner core (giving symmetric fission). There is the possibility that the resonance integrals between these structures are small enough to permit their experimental observation; for exam-

ple, the delay time for symmetric fission of Ra^{226} after proton bombardment may be different from that for asymmetric fission.⁵

References

1. V. M. Strutinsky, Nucl. Phys. **A95**, 420 (1967).
2. L. Pauling, Science **150**, 297 (1965).
3. L. Pauling, Phys. Rev. Lett. **15**, 499 (1965).
4. L. Pauling, Phys. Rev. Lett. **15**, 868 (1965).
5. L. Pauling, Revue Roumaine de Physique **11**, 825 (1966); Proc. Natl. Acad. Sci. U. S. **58**, 2175 (1967).

LINUS PAULING

University of California, San Diego

APS Council vacillation

I am disappointed that the American Physical Society Council vacillated from its well reasoned position and has spent time and money on a ballot. Also I am dismayed that it permitted publication of the inaccurate statement of Jay Orear and Marc Ross. The council of the American Association of University Professors decided on 25 Oct. 1968 to move their meeting to Minneapolis and did so because the same hotel chain was glad to accommodate them there for the same dates. This action was one month before the APS Council meeting.

As an ex-Cleveland I do not accept the proposition that Cleveland hotel space is completely adequate for the APS-AAPT annual meeting.

Now the American Association of Physics Teachers has also balloted. If they had not, I suspect AAPT could get an injunction restraining the rescheduling of this joint meeting.

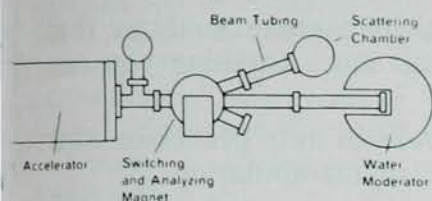
What a sad situation! I had a strong impulse to support Orear, Ross and company because I dislike Chicago as a meeting place. However, my conscience forces me otherwise. I am afraid that others with weaker consciences will seize upon this opportunity to vote us out of Chicago.

LEONARD O. OLSEN

Naval Postgraduate School

I have just returned the ballot that was recently submitted to the membership of the American Physical Society concerning the proposal to change the location of the 1970 annual meeting. I heartily support the earlier decision of the APS Council to hold the meeting in Chicago as scheduled.

It is beyond my comprehension that



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