

letters

Identifying "the first"

As a reader and editor of physics journals I have become disturbed by the growing practice of stating in papers that the calculation or experiment reported is "the first." Many papers repeat the statement several times (insecurity of the authors?). The practice is particularly widespread in the AIP journals and I am surprised that the editors, otherwise so conscious of linguistic, technical and ethical standards, do not clamp down on it.

In my opinion, a paper's originality or greatness should be apparent from its content, without the author having to "blow his horn." Moreover, when an author says, "this is the first observation . . .," the statement can never be proven right. The author does not know whether somebody has seen it before without telling him. At most he could say, "this is the first report appearing in print . . ." But even then, who would be willing to lay his hand in the fire for the veracity of such statement? (We recently proved wrong such a statement appearing in a *Physical Review* paper, much to the embarrassment of the authors.) The acme of the grotesque is found in the abstract of a recent *Journal of Applied Physics* paper: "The first direct effective mass measurements of electrons in metal organic vapor phase epitaxy Sn-doped $Ga_{1-x}Al_xAs$ ($x < 0.33$) epilayers from Shubnikov de Haas oscillations are reported." Thank goodness the authors did not specify x to three significant figures!

This is the first time that a complaint on this matter has been reported.

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Nuclear mean-field theory

I read John Negele's excellent article "Nuclear mean-field theory" (April, page 24) and wish to point out that self-consistent field methods have also been used recently¹ in studies of heavy-particle motion in chemical physics. In this context, the Hartree method is

exploited to describe collective, distinguishable, bound and unbound nuclear vibrational motion. The quantum SCF theory has been used to obtain ground- and excited-state vibrational eigenvalues and eigenstates for molecules as large as formaldehyde (with six coupled vibrational modes). A semiclassical SCF theory has also been developed and used to obtain a generalization of the RRK inversion method from which one can calculate information about the binding potentials of polyatomic molecules. Time-dependent SCF theory has also been considered (semiclassically) to describe collision processes as well as bound vibrational motion. Vibrational SCF methods have also been used to obtain resonance energies using both complex and real coordinates.

As in the applications to nuclear structure, the SCF approach in chemical physics yields results that are both quantitatively accurate and insightfully pleasing.

Reference

1. J. M. Bowman, to be published in *Accounts of Chemical Research*.

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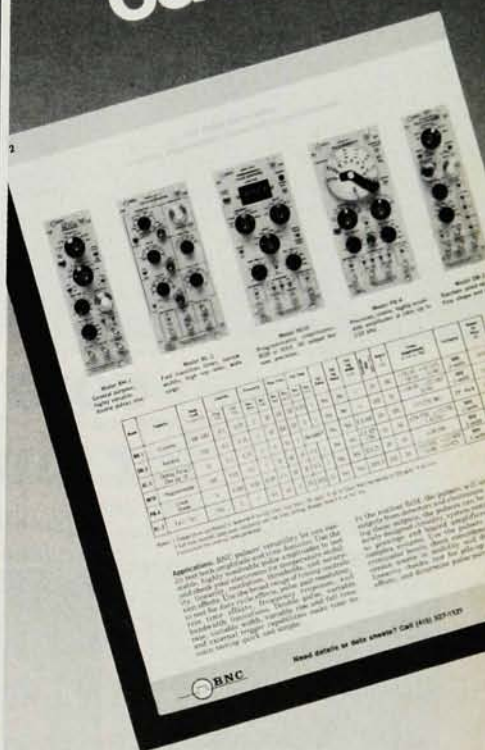
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Nonrelativistic spin

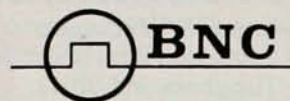
The letters of William J. Hurley (August 1984, page 80) and Paul Roman (January 1985, page 126) concerning the nonrelativistic origin of spin deserve further comment. Their ire was raised by the statement in your excellent news story "Relativistic treatment of low-energy nuclear phenomena" (March 1984, page 20) that "spin is, after all, an intrinsically relativistic phenomenon." The gist of your news item was that the intrinsically relativistic virtual-pair production terms that accompany the strong spin-orbit interaction have a profound influence upon the low-energy properties of nuclei. Whether one considers spin to be a relativistic or nonrelativistic concept is irrelevant in establishing the validity of this point.

The letters of Hurley and Roman may, unfortunately, be interpreted by

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