

LETTERS (continued from page 15)

non that is not very well known because its practical applications are still rather few (but that may slowly change). Therefore, I hope that someone will soon undertake the task of writing a comprehensive up-to-date book on the subject, in that the potential for practical applications can best be promoted by providing a complete, concise, and accurate background.

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More on History of Applied Correlated-Photon Metrology

Regarding the article "Correlated-Photon Metrology without Absolute Standards" in your January issue (page 41), I would like to point out that the general principle behind the idea of a "free lunch" in determining efficiencies of detectors has a history that goes back considerably further than author Alan Migdall indicates. It is a principle that has been used for many years by people in atomic physics engaged in photon-photon and particle-photon coincidence experiments.

The earliest work of which I am aware that used coincidence techniques to determine photon detector efficiencies was that of Eric Brannen and colleagues in 1955.¹ A similar method was employed by F. Cristofori and colleagues in 1963.² Later that decade, our research group at the University of Nebraska routinely used the same concept to measure the absolute efficiencies of energetic hydrogen atom detectors.³

There is a general principle in all such measurements: An electronic flag raised by the first detector tells the second detector that a photon or particle is on its way; when one measures the signal from the second detector in coincidence with the flag, one obtains the absolute efficiency, including all solid angle factors.

References

1. E. Brannen, F. R. Hunt, R. H. Adlington, R. W. Nicholls, *Nature* **175**, 810 (1955).
2. F. Cristofori, P. Fenici, G. E. Frigerio, N. Molho, P. G. Sona, *Phys. Lett.* **6**, 171 (1963).
3. R. H. McKnight, D. H. Crandall, D. H. Jaecks, *Rev. Sci. Instr.* **41**, 1282 (1970).

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MIGDALL REPLIES: I thank Duane Jaecks for pointing out earlier origins of the first of the correlated-photon metrology applications described in my article—namely, absolute detector quantum efficiency. The work described in those early references is helpful in putting the technique in a better historical context, although the researchers did not use the high directionality of phase matching that greatly aids the application of the method.

It is interesting to follow Jaecks's leads back to even earlier times, specifically to a mention made in the late 1930s by N. Feather and J. V. Dunworth¹ of the possibility of observing coincidences "visually" in a scintillator initiated by two alpha particles emitted from the same nucleus.

Reference

1. N. Feather, J. V. Dunworth, *Proc. R. Soc. London, Ser. A* **168**, 566 (1938).

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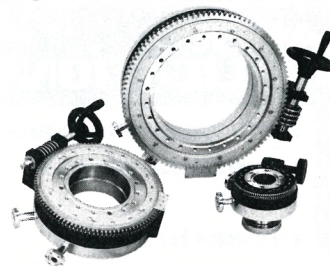
Faculty Retirement Has a FERP Piece to Go in California

To continue the discussion of faculty retirement in your pages, I would like to describe a program that the California State University System instituted in the 1980s and that, though badly diminished, is still in effect. It is called the Faculty Early Retirement Program (FERP).

When I retired in 1985 at the age of 62, I was a participant in the program. At that time, anyone in my status could retire with full retirement pay but was permitted to enter FERP and teach half-time and receive halftime pay until the age of 70. This program proved to be of great help to the university system as it was utilized by aging faculty, thus releasing space that could be used to hire younger faculty. Many colleagues have told me that they would not retire early if they could not participate in FERP.

In my case, I found that I did get slower and tired out more easily as I aged, and that a halftime teaching load was perfect for me and my students. My student evaluations remained high and included positive remarks about my high energy level (that is still the case, in that I'm one of the ex-FERP participants lucky enough to be needed, albeit less than

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halftime now, by my department, as well as to have good health and mobility). I surmise that a faculty elder doing one course can exhibit at least as much energy as a younger one doing three or four plus research (a normal load at Humboldt State University).

Unfortunately, under the present administration of the state university system, FERP has continued to degrade, with the allowable time in the program being relentlessly reduced from its original length of up to eight years. In a contract recently presented for a systemwide faculty vote, there was a provision to further reduce the number of years to four, three, and then two over the next three years. After the faculty refused to ratify the contract, the board of trustees made a unilateral decision: Effective immediately, new retirees will be allowed no more than two years in the program.

It is clear that the FERP type of retirement offers advantages to both faculty and students and should be restored to something close to its original form and be more widely adopted. It is also clear that this university system believes otherwise.

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Use of Engineering Options Could Aid and Abet Physics Majors

Your January story on the possible effects of the criteria for engineering education developed by the Accreditation Board for Engineering and Technology (ABET) (page 59) indicates that the physics community feels threatened. I suggest that one practical way to reduce that concern—and possibly increase undergraduate enrollments in physics—would be for university physics departments to start focusing harder on the potential of offering their students physics majors with engineering options.

The engineering options, such as an electrical engineering option, a mechanical engineering option, or a computer sciences option, would help equip physics majors to successfully go into engineering careers in industry or into graduate study. It should be easy to add such options (consider, for example, that the University of Virginia already offers a pre-med option for physics majors). What is more, some engineering courses, such as signal processing, should be part of the physics major curriculum because of

their importance in many areas of physics. And knowledge of data mining has useful application in particle physics.

There's little question, I think, that the science and technology job market of the future will require individuals able to work in interdisciplinary fields. The physics major with an engineering option will be well qualified to succeed in that milieu.

In closing, I suggest that the term "engineering option" be used because it is likely to help get the applicant's résumé past the nontechnical human resources people. I also suggest that we stop worrying about ABET.

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Ex-PRL Editor Wonders Whether Solo Authors Are Still Singular

In discussing Robert Laughlin's work on the fractional Hall effect in the early 1980s (PHYSICS TODAY, December 1998, page 17), Bert Schwarzschild refers in passing to "the *Physical Review Letters* aversion to the first person singular." There was no such aversion on the part of the journal during the 36 years that I was associated with it; in fact, we made it a practice to change the plural to the singular if there was only one author. Some authors objected to this—C. N. Yang, in particular, comes to mind—but most did not. Of course, many authors avoided the issue by using the passive voice. But for those who did not, the first person singular was not only acceptable but preferable. Has the custom changed, perhaps, since I left the staff in 1988?

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Corrections

March, page 15—José Marín Antuña's letter carried his old e-mail address instead of his current one, which is marin@ff.oc.uh.cu.

April, page 61—It was reported incorrectly that David Moncton has left Argonne National Laboratory; in fact, he was detailed from there to Oak Ridge National Laboratory to direct the building of the Spallation Neutron Source. ■