

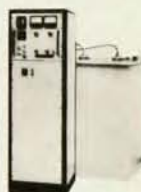


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letters

dences and office buildings, it may be necessary to design new structures where lighting and light-duty appliances operate directly on low-voltage dc produced on-site—a 12-volt dc system for which there are existing appliances—with a local dc utility grid available for auxiliary power. This approach would also simplify feeding consumer-generated power back into the utility grid by eliminating requirements for ac conversion and phase-matching. The historic adoption of ac power was partly based on transmission requirements that lose their relevance when substantial power is generated on-site.

RICHARD B. KIDD

City College of San Francisco
San Francisco, California

THE AUTHORS REPLY: The unregulated output of photovoltaic arrays can obviously be converted either to regulated dc or to ac, but the engineering studies known to us find no significant advantage for dc in system cost or overall efficiency under most circumstances. A good discussion of both photovoltaic systems and end-use issues in residential applications is given in reference 1. Low-voltage systems are of course quite feasible, but are penalized by current handling costs in systems of more than a few hundred watts.

Reference

1. E. J. Buerger, T. S. Chan, et al., GE Space Division, "Regional Conceptual Design and Analysis Studies for Residential Photovoltaic Systems," (Sandia report SAND78-7039, January 1979), Vol II, Appendix D.

HENRY EHRENREICH

JOHN H. MARTIN

Harvard University

11/8/1979

Cambridge, Massachusetts

Ode to a Timon

The photon was discovered in ages past,
the particle of light that sped so fast.
This was considered a great advance
(by those whose careers it helped
enhance).

The phonon was next, a minute chunk of
sound—
a noisy little thing, six decibels to the
pound.

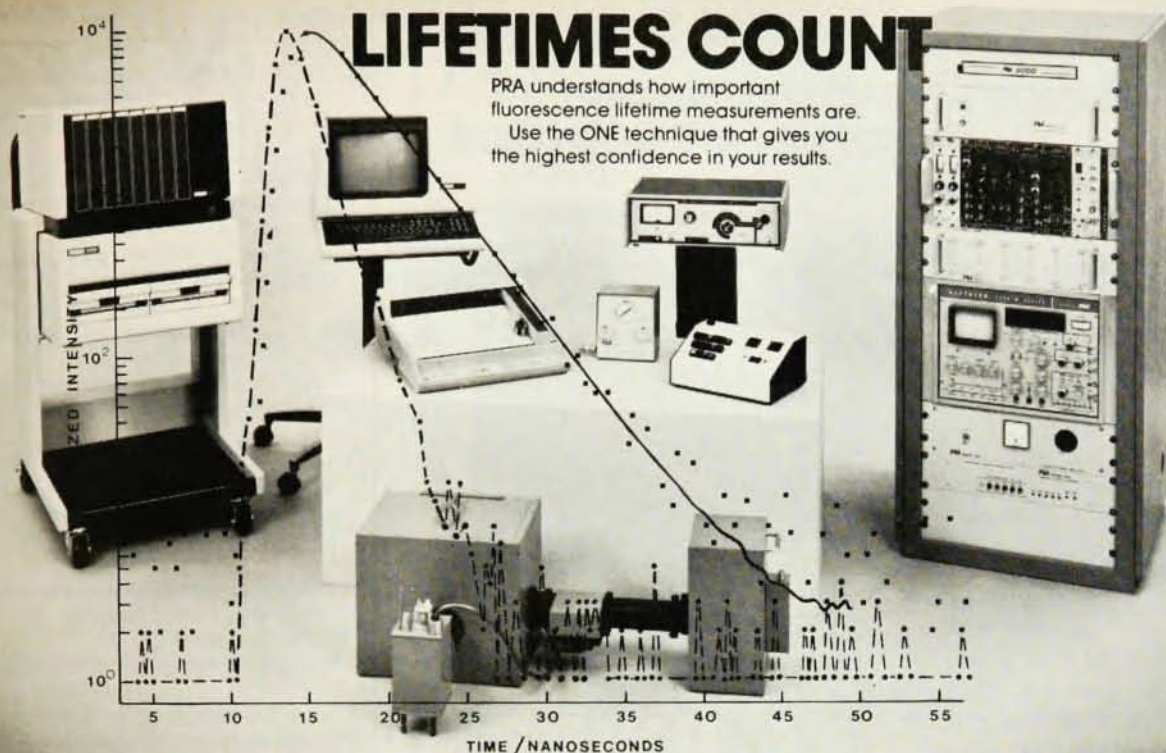
Then bosons and fermions with their
quantized spin—
the "on" explosion was about to
begin!

They've recently postulated the
graviton
as holding us to this earth we're on.
It's been the subject of heavy debate,
though acceptance has increased of
late.

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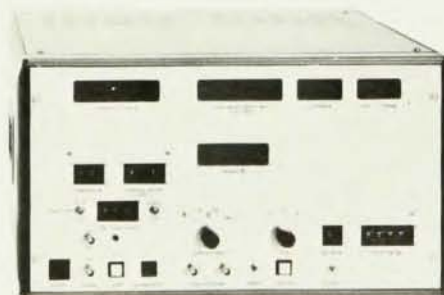
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letters

Consider that fundamental experience we give so much attention; The never ending passage of time defying all comprehension.

I think I have the puzzle solved with an "on" all of my own; I introduce the Timon—pay heed!—it soon will be well known.

The quantum of time of any charge, of multiple mass and spin, Its rapidly changing lepton number with neither max nor min.

The Uncertainty Principle applies proportional to the power. They travel at the speed of time—one hour in an hour.

A marked deceleration is often observed (especially during classes); This is, by inspection, due to their occasionally infinite masses.

Clearly they are gauge invariant (Lorentz transformation). Relativistically correct in pair annihilation.

Now such an observation implies a negative counterpart; The anti-Timon also exists, but the two stay far apart.

Plus and minus can form an "atom," Timonium the obvious name; But it's fruitless to gather a single datum, for no two are the same.

"Personality" is the quantum number that Timons best obey— But all this really says is that each one has its own way.

Quantum Chromodynamics is the theorists' only prayer, But all the coupling constants depend on which one, when, and where.

Any Timon may exhibit strangeness, a moment later, charm; And if it's found with truth or beauty there's no reason for alarm.

If only we could capture one and watch it change its mind; We'd soon know all the quantum numbers— now that would be a find!

There's still a lot of work to do to make the theory concrete; I would have had it done last year but I took an incomplete.

STEVE AXELROD
Yale University

12/14/79 New Haven, Connecticut □