

sist on such growth being restricted to what the taxpayers are willing to fund.

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Solar Irradiance: A Force to Be Reckoned with, a Story to Tell

It is surprising that none of the discussions of changes in Earth's climate that have appeared in *PHYSICS TODAY* over the past year or so have included coverage of the role played by solar irradiance variations. Since it was first noted 20 years ago that the Little Ice Age coincided with the Maunder Minimum,¹ evidence has been steadily accumulating that such variations do indeed affect Earth's climate significantly. As of 1996, the Sun's signature had been seen in the global temperature record of the last few centuries, in ocean basin temperatures of the past 50 years and in ice cores.² The correlation between the reconstructed solar irradiance and the global temperature of the last 400 years is particularly striking. A 1996 study even claimed that during the period 1880–1993, the solar irradiance variations dominated carbon dioxide variations in altering the global temperature.³

The history of solar irradiance research during the 20th century is at least as interesting as the history of the greenhouse effect presented in your January 1997 issue (page 34). Although it is true that the concept of solar forcing came close to extinction in the 1950s, it is clearly experiencing a resurgence at present, and its story deserves to be told.

References

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The Mbone's Connected to the School Zone

The physics community is plagued by low morale amongst faculty members and by a substantial reduction in the number of students entering undergraduate physics programs. At major universities, the reduction in grant monies has adversely affected research facilities and graduate programs. At smaller universities, faculty members are usually isolated

from new developments and current activities in the field of physics. Such isolation has a negative effect on how well faculty members perform in the classroom, as well as on their ability to convey to students the exciting work now going on at the frontiers of physics.

I propose that major research universities use the Internet-based interactive conferencing service known as the Multicast Backbone (Mbone) network to disseminate seminars, conferences and other events that take place on their campuses.

The existence of such programming on the Internet would certainly facilitate and enhance the recruitment of students into our dwindling physics programs. Faculty members would benefit considerably from viewing well-known physicists reporting on their own research and giving seminars on current fields of interest. Such seminars could also stimulate the research efforts of other physicists.

I believe the cost of Mbone dissemination would not be great and the fruits of such efforts would greatly enhance general interest in and knowledge of physics.

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Oscillator Discussion Reflects Laser-Faire Attitude to History

I enjoyed Daniel Kleppner's light-hearted but informative piece, "A Beginner's Guide to the Atom Laser" (*PHYSICS TODAY*, August, page 11), and appreciate his effort to address the knotty issue of what defines a laser.

He states that "a host of devices such as klystrons and magnetrons can produce radiation in the coherent state. In fact, all oscillators produce radiation in the coherent state. Nobody would dream of calling these devices lasers. . . . [A]nyone who can't tell a laser from an oscillator should not be giving scientific advice to neighbors."

The relationship of masers and lasers to other oscillators was also of interest to the inventors of those systems. Maser inventors Charles H. Townes and colleagues coined the acronym "maser" in 1953, and laser inventor Gordon Gould coined "laser" in 1957.¹ At a 1959 conference, Gould made the following observations: "Professor Townes has mentioned an early electron maser, the triode. The Barkhausen-Kurz oscillator is more easily understood. Electrons oscillate ap-

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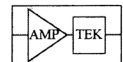
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