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Letters

Photonic future

In "A new way of making spectral redshifts" (SN: 7/11/87, p.22), D.E. Thomsen reviews Emil Wolf's identification of spectral redshifts in light emissions and experiments by Bocko, Douglass and Knox to determine if Wolf's theory applies to acoustics as well as optics. In the final paragraph, reference is made to possible applications in communications transmissions, since redshifts would open a new method of modulation (coherence relation).

I would venture that this procedure will have little practical application in the current telecommunications environment. Telecommunications equipment and transmission facilities are rapidly shifting from analog to digital-based technology due to increased quality, reliability and cost efficiencies. With digital technology, modulation techniques are no longer necessary. Estimates are that

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Cover: And then there were two. Suddenly last March, Supernova 1987A acquired a mysterious companion. Here, a computer-derived image made by the technique known as speckle interferometry shows the supernova and the companion, which is a few magnitudes fainter than the supernova and lies about 2 light-weeks away from it. (Image: Smithsonian Astrophysical Observatory)

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within seven years the entire public network will be digital.

Wolf's discovery may have some applicability in the future when photonic transmission, equipment and switching are deployed to replace digital services. Photonic transmission facilities (fiber optics) are currently being deployed at an escalating rate. Bell Labs (AT&T) and others are working on wavelength division multiplexing to increase the capacity of a single optic fiber as well as on equipment such as telecommunication switches that act on photons rather than electrons.

Greg Smith

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Before the butterfly

"Magic butterfly cleans up chips" (SN: 7/25/87, p.55) was an interesting piece on the defects involved in the gettering of transition

metals in silicon. I would like to comment on the statement, attributed to J. Lagowski, that the butterfly defect is the only gettering process that can work on the order of seconds.

A group of Soviet scientists, led by V.E. Borisenko, published in 1982 the first results indicating that electrochemically deposited silicon could getter metals in seconds during rapid thermal annealing. In 1983 a variant of this was published in the United States by the Materials Research Society. In 1986 D.R. Sparks, R.G. Chapman and N.S. Alvi of Delco Electronics and Purdue University will publish results showing that ion-beam damage can also be used to rapidly getter metals. A wide variety of rapid gettering techniques have been developed in addition to the butterfly defect.

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AUGUST 22, 1987

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