SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication
Volume 132, No. 5, August 1, 1987

Subscription Department
231 West Center Street, Marion, Ohio 43305

Subscription rate: 1 yr., $34.50; 2 yrs., $58.00. (Foreign postage $6.00 additional per year.) Change of address: Four to six weeks' notice is required. Please state exactly how magazine is to be addressed. Include zip code. For new subscriptions only call (1) 800-247-2160. Printed in U.S.A. Second class postage paid at Washington, D.C., and additional mailing offices. Title registered as trademark U.S. and Canadian Patent Offices. Published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N.W., Washington, D.C. 20036. (202-785-2255)
ISSN 0036-8423

This Week

Research Notes

Articles

Cover: Probed by the green light of a laser, a small amount of biological material fluoresces, emitting the yellowish dot that appears in the center. New devices, like the sheath-flow cuvette system operating here (seen from above), are being engineered to help explore and measure a universe of small things — things approaching the scale of individual molecules. (Photo: Jim Jett/Los Alamos National Laboratory)

Departments

Letters

Rippling electrons

I found "Superconductivity and quantum mechanics" (SN: 6/6/87, p.358) very interesting. The theory of ripples or wave action of electrons in the crystal of a superconducting material seems to explain many of the observed phenomena. If the slight movement of atomic nuclei is actually taking place, this should produce some heat if there is a high enough current load and the ripples or waves become more rapid. It would seem to me that this would be a destabilizing effect, because if enough heat is generated the crystal structure could become unstable or the molecules might even undergo chemical changes such as further oxidation.

There was a lot of molecular theory in that one short article.

William J. Cook
Chief, Research Grants Division
Pennsylvania Dept. of Commerce
Harrisburg, Pa.

Things that glow in the dark

Your article on triboluminescence ("A flash in the crystalline pan," SN: 6/6/87, p.360) was interesting. I would like to add my small bit of information on this topic. It seems that Curad-brand bandage wrappers glow when pulled apart. These are made of two pieces of paper held with some type of glue. The light is greenish, and you can stick the two pieces back together and repeat this wonderful effect. I discovered this accidentally one night while replacing a bandage without turning on the light.

Al Pergande
Orlando, Fla.

I once saw flashes of light during the act of removing tightly frozen ice cubes from the aluminum tray with the lever. I often had migraine-type headaches, during which bright lights — even soft lights — were painful. To avoid this, I had gone to the kitchen in the dead darkness of night. Holding the tray, I forced the divider and cubes up out of it. At the instant of breaking free, a bright flash could be seen at what seemed to be the bottom of the cubes at their interface with the aluminum tray.

The next day, without the migraine, I thought about it more, and recalled reading about ice cracking in the arctic regions, sometimes exhibiting flashes of light.

Richard W. Gilson
St. Louis, Mo.

Triboluminescence has been observed in a variety of hard candies and other crystalline materials such as ice. I first noticed the effect while working in a photographic darkroom. Flashes of light appeared whenever I pulled a strip of masking tape from a roll and when I pulled open the adhesive seal on a package of Ilford photographic paper. Other tapes and adhesives produce a similar effect. The phenomenon has occasionally been seen when a stretched rubber band is suddenly released. — I. Peterson