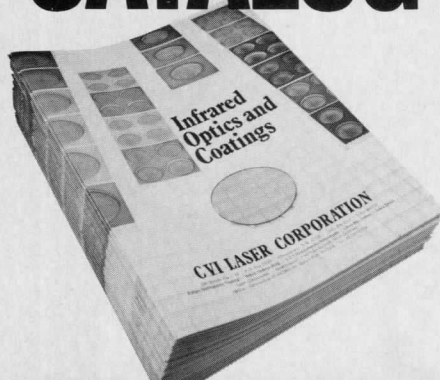


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## News

fibers are much more durable than the fluoride glasses.

The US Patent & Trademark Office has notified Corning that a patent will be issued on the new glass, based on an application filed less than two years ago. The Air Force is sponsoring continued work at Corning aimed at producing higher-quality cadmium-fluoride glasses.

—Jeff Hecht

### Defense

#### Prestigious Study Group To Tackle DEW

The American Physical Society has finalized the selection of a prestigious study group to review and evaluate the validity of directed energy weapons based on high intensity laser and particle beams. Though the concept remains to be proven, DEWs are one possibility being considered for the Strategic Defense Initiative. This is the first such study group sponsored by APS to consider a topic related to national defense. It is not related to the SDI Organization, and is funded in part by the Carnegie Corp., New York, and the MacArthur Foundation, Chicago.

Nicolaas Bloembergen of Harvard University and C. Kumar N. Patel of AT&T Bell Labs co-chair the study group, which met in August for two weeks of classified briefings. Other members of the group are: Petras Avizonis, Kirtland AFB, Albuquerque; Robert Clem, Sandia National Labs, Albuquerque; L. Charles Hebel, Xerox Research Center, Palo Alto; Abraham Hertzberg, University of Washington, Seattle; Thomas H. Johnson, US Military Academy, West Point; Ronald Kerber, Michigan State University; Thomas Marshall, Columbia University; Bruce Miller, Sandia National Labs; Walter E. Morrow, MIT Lincoln Labs; Edwin Salt peter, Cornell University; Andrew Sessler, Lawrence Berkeley Labs; Jeremiah Sullivan, University of Illinois, Urbana; James C. Wyant, University of Arizona, Tucson; Amnon Yariv, California Institute of Technology; and Richard Zare, Stanford University.

According to Patel, "The purpose of the study is to provide a scientific basis for all other studies that may be political or philosophical in nature. The results of the report

should be based on facts that all of us can agree on." William W. Havens, Jr., executive secretary of the APS, noted that "We're trying to raise the level of intellectual discussion, to get the actual physical laws involved down in black and white. It has nothing to do with next year's appropriations. We're looking five years in advance."

Patel defined directed energy weapons to include "any technique that delivers destructive energy to a target at essentially the speed of light." In theory, it is possible to build lasers large enough to defend against ICBM attacks. The study group will look at issues of size, beam quality, efficiency, and manufacturing requirements for laser weapons. They will also look at ways to make a very high energy particle beam that can be focused very tightly, with enough power to destroy a target. They will try to decide what makes lasers and particle beams suitable or unsuitable for this application, and whether the technology is far enough along to be feasible.

The study group has been broken down into six tentative subgroups: lasers, particle beams, beam pointing and tracking, target acquisition, reliability and survivability, and systems. Each subgroup meets on its own, and then every two months all of them meet together to discuss issues that cross the lines.

Once the report is complete, sometime next spring, a review committee will look it over critically before it is released. Patel said that the purpose of this committee is to preserve objectivity by allowing the study to be reviewed by knowledgeable individuals who were not actually members of the study group. The same committee previously made suggestions for and agreed upon the study agenda.

According to review committee member Arthur Schawlow, Stanford University, "The final report should make sense on the basis of generally-available information, and should be able to be defended in public." Though some of the related information is classified, the eventual report will be unclassified.

Other members of the review committee include chairman George Pake, Xerox Corp., Palo Alto; Michael May, University of California, Livermore; Charles Townes, University of California, Berkeley; and Herbert York, University of California, La Jolla.

—Holly Bigelow