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PHYSICISTS HEAR OF STRONG LASER

Parley Told of the World's Most Powerful Beam

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Special to The New York Times

WASHINGTON, April 29 — American scientists reported today the development of the world's most powerful continuous-beam laser whose output energy could, theoretically, drive a sports car.

The new laser can produce 30 kilowatts of power in a very narrow beam and 60 kilowatts in a more divergent beam. These values are about triple those of the most powerful continuous-beam lasers in operation.

Dr. Edward T. Gerry of the Avco Research Laboratory in Everett, Mass., which developed the new device, described the laser at the annual meeting of the American Physical Society in the Sheraton-Park Hotel.

Scientists attending the meeting heard more reports of newer and lighter-powered lasers of various types from other groups of American research teams.

The laser, only a decade old, is a device that generates an extremely powerful and concentrated beam of light. The acronym stands for light amplification by stimulation of emitted radiation.

Lasers are increasingly being used for a number of purposes, from cutting the hardest metals to drilling holes in the nipples of baby bottles. They are also used to make maps and detect turbulent air in the atmosphere.

'Death Ray' Denied

Scientists appearing at a new conference on laser developments emphatically denied that lasers were being built to be used as "death rays," about which there has been much speculation.

Yet it is known that the Department of Defense is spending at least $10-million a year to underwrite laser research. During the news conference, scientists, some of whom receive money from the Pentagon to conduct laser research, repeatedly shied away from discussing why the military services are so interested in the devices.

Dr. Gerry, whose company receives funds for laser research from the Air Force and the Advanced Research Projects Agency, the Pentagon's research arm, commented that "you probably better direct questions about the military applications of this laser to the military itself."

Attempts to obtain answers from the Pentagon were unavailing.

Dr. Gerry described the Avco laser as resembling a rocket engine composed of two chambers the size of breadboxes separated by a nozzle. A gas composed of nitrogen and carbon dioxide is heated in one chamber to about 3,000 degrees Farenheit.

The gas is shot through the nozzle into the second chamber at supersonic speed. The carbon dioxide molecules become extremely "excited" and some of them "lase," or emit photons. Mirrors focus them into a beam of light that is emitted from the chamber.

Specialized Applicants

Dr. Gerry emphasized that lasers, at least at present, can only be used for specialized applications such as the drilling of very small holes. Wider applications, such as power sources for autos, are not possible because lasers are so inefficient. Only about one per cent of the energy put into the Avco Everett laser emerges as light.

Anthony J. DeMaria of the united Aircraft Research Laboratories in East Hartford, Conn., described a new type of electricially powered laser that develops lead power than the Avco Everett model, 11.5 kilowatts, but is far more efficient. About 14.5 per cent of the power that goes into this type is emitted as light.

He said his company was experimenting with the laser to determine if it could be used as an atmospheric optical scanner to detect the jet stream and turbulence caused naturally by winds and artifically by large jet aircraft.

Dr. Alexander J. Glass of Wayne State University said scientists in the United States, the Soviet Union and France were developing inreasingly larger lasers that produce enormous bursts of light energy, such as 100 trillion kilowatts, in extremely short periods of time, such as a few trillionths of a second.