Discovery viewed as breakthrough in miniature lasers

By Martin Binkley
Times Science Writer

Northwestern University researchers say they have discovered a way to make high-powered lasers on a computer chip, a breakthrough that should lead to a new generation of miniature lasers.

Until now, the only means of making high-powered lasers, such as those used in medicine, information storage and high-definition television and for military applications, has been either in the familiar long gas lasers or with computer chips that contain aluminum. But these aluminum-based chips have very short lives and can be used only in limited applications.

The new aluminum-free quantum wells that produce the lasers are made from a combination of elements known as indium gallium arsenide phosphide and are made under pressure in a process known as metalorganic chemical vapor deposition.

"This finding should lead to a whole new generation of commercial high-powered lasers that will be reliable, long-lasing and precise," said Manoj Razeghi, director of the Center for Quantum Devices at Northwestern.

Collaborating with Razeghi in developing the chip was Dmitri Garberov, visiting scholar from the Russian Academy of Sciences.

Previously, the only method for producing the lasers on a chip had involved the use of aluminum gallium arsenide. But the aluminum content led to defects in the original construction and sudden failures in operation.

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RMD cutback eyed.

The Ballistic Missile Defense Organization may not purchase four additional Topaz 3 spaceBased nuclear reactors from Russia for $21 million because of budget problems, Space News reports.

The United States purchased two reactors last year for $13 million. The BMDO budget for 1994 was hit with a $1 billion cut from the Clinton administration's $5.8 billion request for missile defense.

The administration decided to also cancel a U.S. nuclear reactor development program called SIP-108.