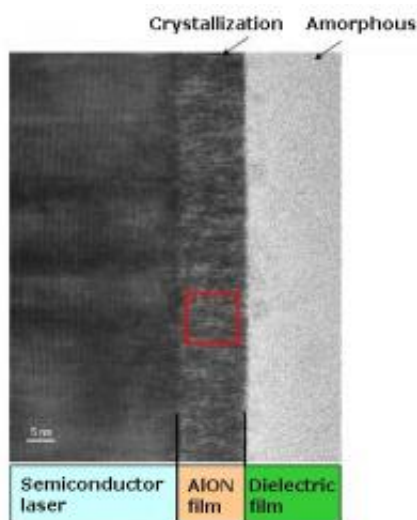


# Sharp's New Semiconductor Laser for Triple- and Quadruple- Layer Blu-ray Discs

September 18 2009, by Lin Edwards

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A cross-sectional image of the semiconductor laser with an aluminum oxynitride film.

(PhysOrg.com) -- Sharp Corporation has announced the development of a new 500 mW semiconductor laser for triple- and quadruple- layer Blu-ray discs.

Sharp announced its new development in Japan earlier this month, at the Japan Society of Applied Physics' 70th Autumn meeting.

The semiconductor laser is blue-violet, producing an optical output up to 500 mW and 405 nm [wavelength](#) of oscillation under pulsed operation.

The new laser has been proven reliable over 1,000 hours of testing.

The device is designed to be used in Blu-ray Disc recorders, and can write at 8 x speed on both triple- and quadruple- layer discs. This would mean recordable discs (with 25 GB per layer at present) to be 75 or 100 GB. The development follows the mass production of a 320 mW blue-violet semiconductor laser starting in June this year. The 320 mW device can write at 8 x speed on single- and dual- layer discs.

The optical output of the laser was improved by changing the way the edge of the semiconductor laser crystal is processed. Previous devices have covered the semiconductor laser crystal with a non-crystalline film, but this method allowed heat to degrade the crystal and eventually stop oscillation. The new process uses an AION (aluminum oxynitride) crystalline coating between the dielectric film and the semiconductor crystal's edge face. This allows the laser output to be increased.

Sharp announced it is ready to produce the new semiconductor laser, but is holding off until triple and quadruple layer disc specifications are settled.

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