

Digital Media & Consumer Products

Central Research Laboratory

Advanced Storage Research Department

Hitachi, Ltd., web site 【24th Sep 2012 News Release】 <http://www.hitachi.com/New/cnews/120924.html>

Storage technology developed for fused silica glass to record and read digital data in the order of CD recording density



Recorded pattern



Image obtained with optical microscope



Dot image after outline enhancing signal processing

【Achievement】

Hitachi, Ltd. today announced the development of technology for the semi-perpetual storage of digital data in fused silica glass which is known for its high resistance to heat and water, in collaboration with the laboratory of Professor MIURA Kiyotaka of the School of Engineering, Kyoto University. The data is recorded using a laser, and can be read using an optical microscope.

■ Characteristics

(1) High-speed high-density recording technology using a femtosecond laser

In order to increase storage capacity, multi-layer recording technology was developed by optimizing laser power, and the spacing and depth between the dots, enabling high density recording. Further, to increase recording speed, a spatial light modulator (SLM) capable of two-dimensionally modulating the amplitude and phase of light was used to develop simultaneous multi-bit recording technology capable of recording a batch of one hundred dots.

(2) Read technology using an optical microscope

Technology was developed to enable simple access to the digital data using a conventional optical microscope.

■ Plan

By further increasing recording density, Hitachi will proceed towards practical application through verification tests.