

Segmented waveguide array gratings (SWAG) Based archival optical memory

We describe a new type of archival optical memory where bits of information are structurally stored inside bulk glass in the form of a matrix of segmented waveguide array gratings, this type of waveguide being referred to here by the acronym and word "Swag". Following the injection of an ultrashort laser pulse into one of the Swag waveguides, the information bits are read out by means of pure time domain and spectrally resolved time domain reflectometry. The segmented waveguide array gratings (Swags) are described in the accompanying provisional patent application. The surface density of access to stored information for the Swag-based archival memory is expected to be 10 to 100 times more than for current two-surface optical disks. Using glass as the preferred embodiment, the information could be stored reliably for millions of years.
