

## **High-density multilayer recording of microgratings for optical data storage (Proceedings Paper)**

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### **Paper Abstract**

A novel approach to 3D optical information storage based on writing and reading of microscopic holographic gratings in a photopolymer layer is presented. Strongly localized reflection gratings created by two highly focused laser beams are used to replace the pit and land structure of the CD/DVD technology. The holographic recording method presented here allows employing various multiplexing methods. A combination of wavelength multiplexing and multilayer storage is proposed to achieve storage densities similar to page-oriented holographic data storage. In this paper we report on recording and readout of submicron-sized gratings using diffraction limited laser beams. The transversal extent of a micrograting corresponds to the optical resolution limit. Track spacing and bit-to-bit separation are about 500 nm. The interlayer spacing through the depth of the photopolymer is less than 8 micron. This way a 3D structure is realized that even refines the surface data structure of current DVDs.

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