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Samsung will be the first to use the petabyte-sized discs Thunderfap

[Petabyte Optical Media, Due to Arrive in 5 Years](#)

The new discs will be similar to Blu-Ray media on steroids

Researchers at the University of Technology's Centre for Micro-Photonics are currently developing a new type of optical media that promises to deliver huge storage capacities, ranging to a full petabyte. The disk will be able to host the equivalent of as many as 200,000 DVDs and will revolutionize the storage and media industries. In order to achieve the new medium, researchers are using nanoscopic particles that can exponentially increase the amount of data stored on a single disc. "The idea is to incorporate nanostructured material and to increase the data capacity without necessarily increasing the size of the CD or DVD disc," says Professor Gu, who is director of the Centre for Micro-Photonics and leading the \$1 million project. The five-year project is funded by the Australian Research Council, as part of the plan to create the 'next generation' discs using a number of different techniques, such as increasing the data density as well as using a large number of layers. According to Dr. James Chon, a senior lecturer at the center, the currently used recording technology uses less than a micron of the 1.2-millimeter disc thickness. "So in other words you have only used 0.1 per cent of the volume and 99.9 per cent is wasted," he says. "You can stack up multilayers to increase the amount of data." The double-sided DVDs can hold up to four layers of recording material, but the project aims at delivering optical media with no less than 52 different layers. Chon also claims that the discs can be expanded to hold 200 and 300 layers, but nanotechnology can offer other opportunities, such as the addition of some other two dimensions to the existing three spatial dimensions. "That polarisation can be rotated 360 degrees," explains Dr. Chon. "So, for example, if you were to record at zero degree polarisation, you could also, on top of that, record another layer of information at 90 degrees polarisation and they will not interfere with each other." There are more unsolved issues that need the researchers' attention before the product is fully functional, but the technology is promising enough to make storage giants such as Samsung get interested in using it.