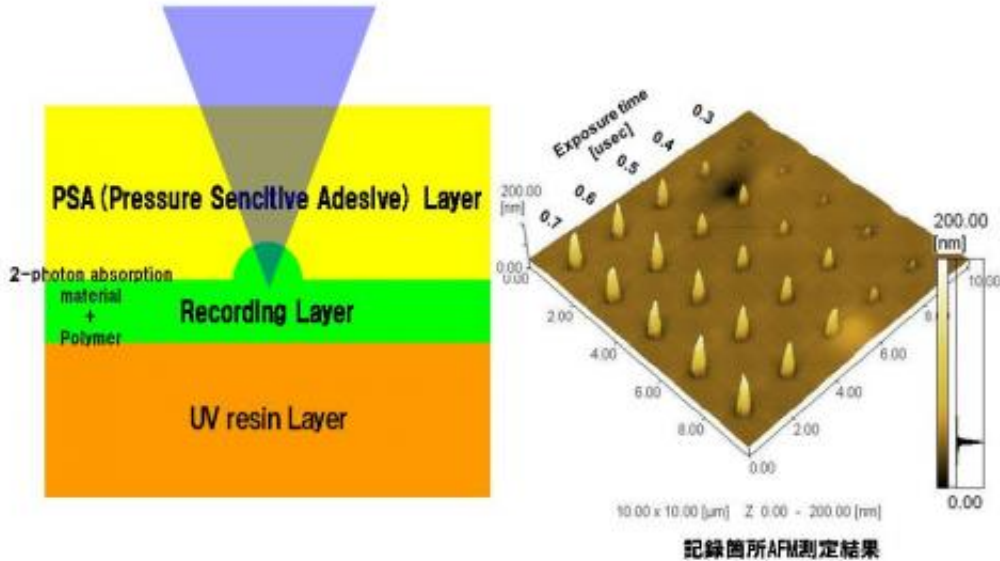


Fujifilm will introduce 1TB optical disc in 2015

November 18 2012, by Nancy Owano

FUJIFILM

記録突起形状の作り方



The structure of the two-photon absorption material (left) and the variation of the convex shape depending on the irradiation time of a laser light (right).

Credit: TechOn!

(Phys.org)—Fujifilm is working on a new recording method for optical discs. It has developed the new method through the use of two-photon absorption in order to generate heat, and the report in *TechOn!* notes that

this two-photon method is suited for multilayer discs. As the reaction caused by two-photon absorption can be limited to the small area of the focal point of a laser light, it is possible to increase the number of recording layers. The nuance is that Fujifilm has combined a two-photon absorption method with a "heat-mode recording" method. The latter refers to technology that makes the most of a phenomenon where a change is caused by applying a laser light with a high energy density to instantaneously increase the temperature of a minute area of a recording material. Two-photon absorption refers to the simultaneous absorption of two photons of identical or different frequencies to excite a molecule from one state to a higher energy electronic state.

According to Fujifilm, the procedure can bring about a recording density of 25 Gbytes per layer, the equivalent to the recording density of a Blu-ray Disc (BD), in addition to 20 layers per side of a disc. A double-sided optical disc with a 1TB [storage capacity](#) is possible. Fujifilm foresees bringing a 1TB optical disc to market in 2015.

Fujifilm simplified the manufacturing process by using "web coating" to form the recording, ultraviolet curable resin and adhesive material layers and sticking them together.

With BD, spin coating and sputtering are needed for each layer."It takes 147 seconds to form a four-layer BD," the company said. "With our method, it takes only 58 seconds to form eight layers."

Overall, Fujifilm said that the new disc's manufacture will be cheaper than BD discs currently available. The two-photon absorption disc has a cost as low as that of a magnetic tape. A company spokesperson said that, "We will continue the development of the disc with help from drive makers."

This new recording method potentially will realize a 15-Tbyte disc. "In

the future, it will be possible to realize a 15-Tbyte [optical disc](#) (25 Gbytes/layer x 3 (eight values) x 100 layers x 2 (two sides)," Fujifilm said.

Fujifilm was scheduled to discuss its latest results at the International Broadcast Equipment Exhibition 2012 in Chiba Prefecture, Japan, which wound down over the weekend. This year's event was described as focusing on "the next technological innovations beyond digitalization."

More information: [www.fujifilm.com/about/research ... /ff_rd056_005_en.pdf](http://www.fujifilm.com/about/research/ff_rd056_005_en.pdf)
[techon.nikkeibp.co.jp/english/ ... 20121113/250732/?P=2](http://techon.nikkeibp.co.jp/english/.../20121113/250732/?P=2)

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