New Non-linear Optical Phenomenon Revealed with Photonic Crystals

Nanoscience Development and Support Team (Special Postdoctoral Researcher: Dr. Shinichiro Inoue) Nanoscience Research Program, RIKEN Frontier Research System, succeeded in the observation of the increase effect of non-linear optical change by using photonic crystals that are used for optical nano-technology to factitiously control the optical properties of substances.

This new technology is expected to play an important role in the realization of optical switching devices with data transmission rate in the 'tera' (a 'tera' meaning one trillion) orders, which are required in ultrahigh data transmission in the next and further generations.

The success this time has demonstrated for the first time in the world the preparation of 2-dimensional photonic crystal structure with highly non-linear materials to magnify the non-linear change of substances by approximately five times. Optimum designs of the devices is said to realize the non-linear changes of one hundred times or more of magnification.

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