New Technology having 10 times optical speed

A research Organization has developed an optical source for generating light of a large number of wavelengths with high precision. This was made possible by employing semiconductor quantum dots of nanoscale structure in a band consisting of wavelengths that are not currently used for optical communication, by employing semiconductor quantum dots as optical amplifying material acting in the 1.0–1.3 micron wavelength band, they have succeeded in developing a quantum dot light source with a combination of stability and a high optical frequency. Further, they have succeeded in conducting an optical transmission experiment using this light source and a photonic crystal fiber, which demonstrated the possibility of using a new wavelength band for optical communication for the first time.

The “New Technology having 10 times optical speed” makes it possible to secure an optical frequency resource (about 70 THz) whose band covers about 10 times the width of the currently used optical communication wavelength band. This improves the band’s efficiency. Moreover, as quantum dots and a photonic crystal fiber have nanoscale structures, the application of nanotechnology is expected to be a revolutionary technology for an optical information communication.

The team has already demonstrated the working prototype of the technology.

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