

Researchers at Northwestern University are working on new types of computer chips that will manipulate bits of light rather than electricity

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Abstract:

Researchers at Northwestern University (Evanston, IL) are working on new types of infinitesimal computer chips that will manipulate bits of light (called photons) rather than electricity to do their work. These chips will utilize components 1,000 times smaller than traditional miniaturized, electronic chips in use today, and will be far more faster, cheaper and powerful. Photons are widely used in telecommunications today to carry 1 million phone calls on a micron-sized single strand of optical fiber as thin as a piece of human hair. Northwestern researchers have already developed nano-sized (one billionth of a meter) photon manipulating devices with the potential to boost the data-carrying capacity of today's fiber by a factor of 100 to 1,000. They aim to create a chip with 1,000 nano-sized components packed together that would harness far less power than today's circuits and cost far less. By comparison, today's photon circuits are relatively large, simple, may pack together four to 10 photon manipulating components and cost \$10,000. The field of opto-electronics is very popular today especially in terms of research on the potential applications of nano-photonics.

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