SHINING A LIGHT ON NOBEL WINNERS FOR FIBER OPTIC AND CCD TECHNOLOGY

Beginning in 1901, the Nobel Prize has been awarded for pioneering discoveries and breakthrough inventions. This year, the Royal

Swedish Academy of Sciences granted the Physics Nobel Prize for two scientific achievements that have helped “shape the foundations of today’s networked societies.”

One-half of this year’s physics award goes to Charles K. Kao for “groundbreaking achievements concerning the transmission of light in fibers for optical communication.” The other half jointly goes to Willard S. Boyle and George E. Smith for “the invention of an imaging semiconductor circuit—the CCD sensor.”

In 1966, Mr. Kao of the Standard Telecommunication Laboratories, Harlow, U.K. and Chinese University of Hong Kong, discovered how to transmit light signals long distances over hair-thin optical glass fibers.

“What the wheel did for transport, the optical fiber did for telecommunications,” said Richard Epworth, who worked with Kao in the 1960s.

Today, optical fibers are at the core of all communications systems and enable global broadband communications, such as the Internet. Almost all long-distance telephony and data traffic, including text, music, still images, and video, is carried around the world in just a split second on fiber cable.

A large part of that fiber optic traffic is digital imagery. Boyle and Smith each earned a fourth of the award for their 1969 invention of the first successful imaging technology using a digital sensor, or Charge-Coupled Device (CCD). The CCD is the digital camera's electronic eye and is the core of digital photography. This remarkable technology makes use of the photoelectric effect by which light is transformed into electric signals. The CCD captures the signals and maps them in a large number of image points or pixels. CCD technology is also used in medical applications, such as body scans.

Fiber optics cable is also one of the fastest-growing transmission mediums for both new cabling installations and upgrades. Sign up for our FREE Fiber Optic Technology white paper to find out why fiber is the ideal choice for your network backbone.

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