



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



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## ***Charles Kuen Kao and the invention of optical fibers***

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### **ABSTRACT**

Theoreticians of innovation and historians of science distinguish “mature” inventions – i.e., those inventions that were somehow in the air, and were sought by several competitors at the same time – from sudden, totally unexpected breakthroughs. So, let us ask ourselves: were optical fibers a “mature” invention?

If we look at the crucial role they play nowadays in the Information Society, at the terrific rate at which their networks grew over the last three decades, at the fact that ordinary people think of them as a commodity, we are clearly inclined to answer *yes*. But this was absolutely not the case: those who lived the heroic ages of optical communication, in the late sixties and early seventies of the past century, know that the opposite is true. It took a genius to envisage their potential advantages, to outline sharply their initial problems, and to show that all these problems could be solved. And it took a tough fighter to convince the rest of the world that optical fibers were the way to go. The genius and the fighter were the same person, Charles Kuen Kao, Nobel Prize for Physics in 2009, and Doctor Honoris Causa at the University of Padua in 1966.

### **FURTHER READINGS**

- 1) Charles K. Kao's Nobel Lecture. *Sand from Centuries Past: Send Future Voices Fast*. 8<sup>th</sup> December 2009

Other materials provided by the lecturer.