

# The 6<sup>th</sup> Dvořák Lecture

By Professor **Orazio Svelto**, Politecnico di Milano, Italy

## The LASER: a Historical Perspective

June 4, 2014 at 3:00 pm

Institute of Physics of the AS CR, v. v. i., Na Slovance 2, CZ-182 21 Praha 8, Czech Republic

### Annotation

From the race to make the first laser to early developments in laser science, a description will be made of the most important achievements. Likewise, the birth of nonlinear optics and the advent of ultrafast laser science will also be considered. In any case, a very coarse review of some of most important achievements will be presented, with the addition of a few anecdotes and curiosities as derived by the personal reminiscence of the author.

So far, 21 scientists have been awarded the Nobel Prize for researches on lasers or with lasers. A coarse review and some critical historical connection between these awards will also be considered.

In the early days the laser was named as "*a bright solution looking for a problem*". Conclusion will be made about the fact that, nowadays, the laser represents "*the bright solution for many problems in science and technology*".



### Orazio Svelto

Born in 1936, he received the degree "*Laurea in Ingegneria Nucleare*" from Politecnico di Milano in 1960 and, in 1966, the degree "*Libera docenza*" in Quantum Electronics. From 1976 to 2010 he was full professor of Physics at Politecnico di Milano. Since 2010 he is Emeritus Professor at Politecnico di Milano.

The research activity has covered a wide range of topics related to the physics and applications of solid-state lasers and of ultrashort laser sources,

starting from the very early beginning of these disciplines (1961). He is the inventor of CW diode-pumped Yb:Er:glass laser, often used for eye-safe optical measurements and communications. He is also the inventor of the hollow-fiber compressor, an important advance toward attosecond sciences. He is the author of the book "*Principles of Lasers*", presently at its fifth edition (Springer, New York, 2010). The book has been translated in Russian, Chinese, Greek, Arabic and Farsi languages and it is widely used at several universities.

He is the recipient of the Gold Medal for science and culture by the President of Italian Republic, the Quantum Electronics Prize of the European Physical Society and the Charles Hard Townes Award of the Optical Society of America. He served as a Program Chairman, Conference Chairman or Honorary Chairman at several international conferences. He has performed expert work for the Royal Swedish Academy of Sciences. In the celebration of the 50<sup>th</sup> anniversary of the laser (San José, CA, May 2010) Svelto was selected as one of the 10 speakers, as laser pioneers.



### Vladimír Dvořák (1934–2007)

Solid state physicist, the most prominent Czech scientist in the theory of ferroelectricity and structural phase transitions, for the whole productive life affiliated with the Institute of Physics, Acad. Sci. Czech Rep. in Prague, its director in 1993–2001, member of the Learned Society since 1995. The main protagonist of the revolutionary reforms in the Institute of Physics after 1989.

His personality has strongly influenced the scientific program and development in the Department of Dielectrics of the Institute since the late sixties up to present. Brilliant lecturer and most respected director of the Institute.

To commemorate his work and personality, the Institute of Physics of the Academy of Sciences of the Czech Republic decided to organize an annual festive Dvořák lecture, given by prominent internationally renowned scientists in the field related to the research pursued at the Institute of Physics.