



## Laser

**Date:** Venerdì, febbraio 15 @ 12:14:21 CET

**Topic:** Educational Lighting Site



First came the M.A.S.E.R. (Microwave Amplification by Stimulated Emission of Radiation), a device that can amplify microwaves through the stimulated emission of radiation. It was devised by a group of physicists at Columbia University in the mid 50s.

The inevitable development was to try to extend this emission to the range of optical frequencies. The first L.A.S.E.R. (Light Amplification by Stimulated Emission of Radiation) emission was attained by Theodore H. Maiman at the Hughes Research Laboratories in 1960. In order to do so, Maiman used a ruby crystal excited by a white light flash lamp. The laser created a series of pulsating emissions, in the shape of an intense red ray, which lasted for approximately a thousandth of a second. In 1961 at Bell Telephone Laboratories, Ali Javan, solved the problem of a pulsated emission, by creating a continuous emission laser. It is a laser which uses, as the active medium, a mixture of Helium and Neon gases. In the following years scientists developed many other techniques to obtain stimulated emissions of Laser light. · In 1961 it was discovered how to obtain a continuous emission through crystals (special glasses) · In 1962 a laser emission through crystals of a Gallium Arsenide semiconductor in the shape of a junction diode excited directly by an electric current was obtained. · In 1963 scientists working for General Telephone and Electronics created the first chelate liquid laser using europium ions as the active element. To the same year belongs the discovery of the Q-Switching technique, which was able to generate powers exceeding by 100 times the ones obtained until then. · 1964 is the year of the creation of the first ionised lasers using ionised gases such as Mercury and Argon as active elements. In the same year it was discovered that the first Carbon Dioxide molecular laser was able to generate a power of many hundreds of watts. · In 1965 the first chemical laser using Chlorine e Hydrogen as active elements was discovered. · In 1970 E.T.Gerry built the first gas dynamic laser that used as active element a mixture of gases (including carbon dioxide) able to generate extremely high powers (up to 60 KWs) with outputs reaching almost 1%. Lasers applications range from Research, Measurements and Alignments, Telecommunications and Space Programmes, Medicine, Military Programmes and last but not least Industry in general including the Entertainment business. By kind concession of Aldo Visentin

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