



DIPARTIMENTO DI SCIENZE  
MATEMATICHE E INFORMATICHE,  
SCIENZE FISICHE E SCIENZE DELLA TERRA  
Dottorato di Ricerca in Fisica

## Appunti di Fisica '22

**8 giugno ore 15:30**

su Microsoft Teams "Seminari di Appunti di Fisica"

### Phosphors: preparation, characterization, and luminescence applications

#### Francesco Armetta

(Dipartimento Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche-STEBICEF,  
Università di Palermo)

Luminescent materials, also called phosphors, are defined as solids able to absorb and convert some types of energy into electromagnetic radiation if opportunely stimulated. In recent years, phosphor technology has dynamically evolved due to the high interest in luminescent systems. Luminescence is a physical process involving the emission of photons by excited materials able to decay into their ground state through a radiative type process. Depending on the type of excitation source, luminescence can be distinguished into chemiluminescence, electroluminescence, thermoluminescence, or photoluminescence. The latter occurs following the excitation of the material by electromagnetic radiation.

Inorganic phosphors are the most used materials, they are based on a host lattice and an activator, called doping center, which generally represents an impurity in the host lattice. These systems show high yields in the conversion of light and it is possible to modulate their properties by intervening in the synthesis parameters. The presentation will describe some of the synthetic ways to prepare inorganic phosphors and perform their characterization to study their physico-chemical properties. Finally, there will be a description of some of the innumerable fields of application in which phosphors find and will find wide use.

<https://appuntidifisicamegina.wordpress.com>