

**Scintillators : an overview***Paul Lecoq, CERN, Geneva*

Scintillators and particularly heavy inorganic scintillators are widely used as X-Ray and Gamma-ray detectors for a number of scientific and industrial applications such as:

- High-energy physics and particle detectors;
- Spectrometry of low energy  $\gamma$ - quanta;
- Medical imaging;
- Homeland security;
- Space applications.

Whereas until recently the only possibility to select a scintillating material was to scan data bases to select, among the few which are available, the one having reasonable properties, very often at the price of important compromises, the dream of engineering scintillators closely matching the user's requirements is becoming every day more realistic.

It appears that the progress in understanding scintillation process and in material sciences in general opens new ways to answer the challenging requirements of an increasing number of customers.

This lecture will give a status of the progress in understanding the fundamental mechanisms underlying the scintillation phenomenon, including the factors limiting the light yield, the timing characteristics and the radiation hardness.