



NANOTUBE XRAY GENERATOR FOR DISINFECTION

Nanotube Xray Generator for Disinfection

Project Summary

Standard X Rays sources are very expensive and breakable, so they are used for medical instruments imaging but not for disinfection.

Cold cathode X rays sources developed in this project use properties of carbon nanotubes to produce X rays: with high voltage, carbon nanotubes emit electrons which create X-rays by hitting the anode. These cathodes are cheaper and more robust than standard sources.

With a substantial improvement of our nanotechnology tested only up to 4 kV, we have developed, for the first time, a functional prototype which emits X-rays at 20 kV. The X-rays emission is omnidirectional, homogeneous and its spectrum has the same quality as the other standard hot cathode sources.

Valorisation

The X-rays generator with nanotubes of carbon is particularly adapted to disinfection:

- The dimensions of the cold cathode can be easily adapted on the volume of the product to treat.
- The omnidirectional emission in a cylindrical symmetry is a great advantage to treat the volume simultaneously in all directions with the same power.

The technology used is very robust and can be adapted for industrial use.

A Start Up will be created to valorize these cold cathode X-rays generators.

In the future the power of these X-rays sources will be improved to have more applications.

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This project has been carried out by MNT Institute (HEIG-VD) in collaboration with the Institute of Life Technologies (HES-SO Valais-Wallis)