

## Improvement of the signal / noise ratio in detectors used in hadronic therapy

### DESCRIPTION OF THE TECHNOLOGY

CSIC and the University of Valencia have developed a device that makes it possible to effectively determine the place where radiation is deposited in hadronic therapy, a decisive aspect of the clinical application of this technique against tumors. Unlike conventional radiation therapy, hadronic therapy uses heavy charged particles to irradiate the tumor. Since heavy particles destroy the tumor more effectively than photons, and it is possible to deposit a lower dose in healthy tissue.

In order to use hadronic therapy, it is essential to determine in real time whether the radiation dose is being used at the intended site, and by means of

this invention it is possible to monitor the radiation dose of hadronic therapy.

For the proper use of hadronic therapy, it is essential to be able to determine if the irradiated tissue receives the correct dose. Detection of secondary particles from irradiated tissue is a method of monitoring therapy. Currently it is only performed using PET techniques. With the use of this new device, the signal-to-noise ratio is improved with respect to the techniques currently used. Enabling an improvement in the monitoring of hadronic therapy, making it more effective.

### MARKET APPLICATION SECTORS

Application in nuclear medicine (control and monitoring of hadron therapy).

### TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

- Improvement of the signal / noise ratio in hadronic therapy with respect to current techniques.
- Greater efficiency in the use of hadronic therapy, by monitoring the technique in a better way.
- Lower dose of radiation applied to the patient.
- Invention easily incorporated into currently used devices.

### CURRENT STATE OF DEVELOPMENT

Patent application filed in Europe, United States and China. The device has been tested successfully in laboratory conditions.

### COLLABORATION SOUGHT

Industrial partners in the field of medical devices manufacturing are being sought to collaborate through a patent license agreement for the industrialization and commercialization of the device.

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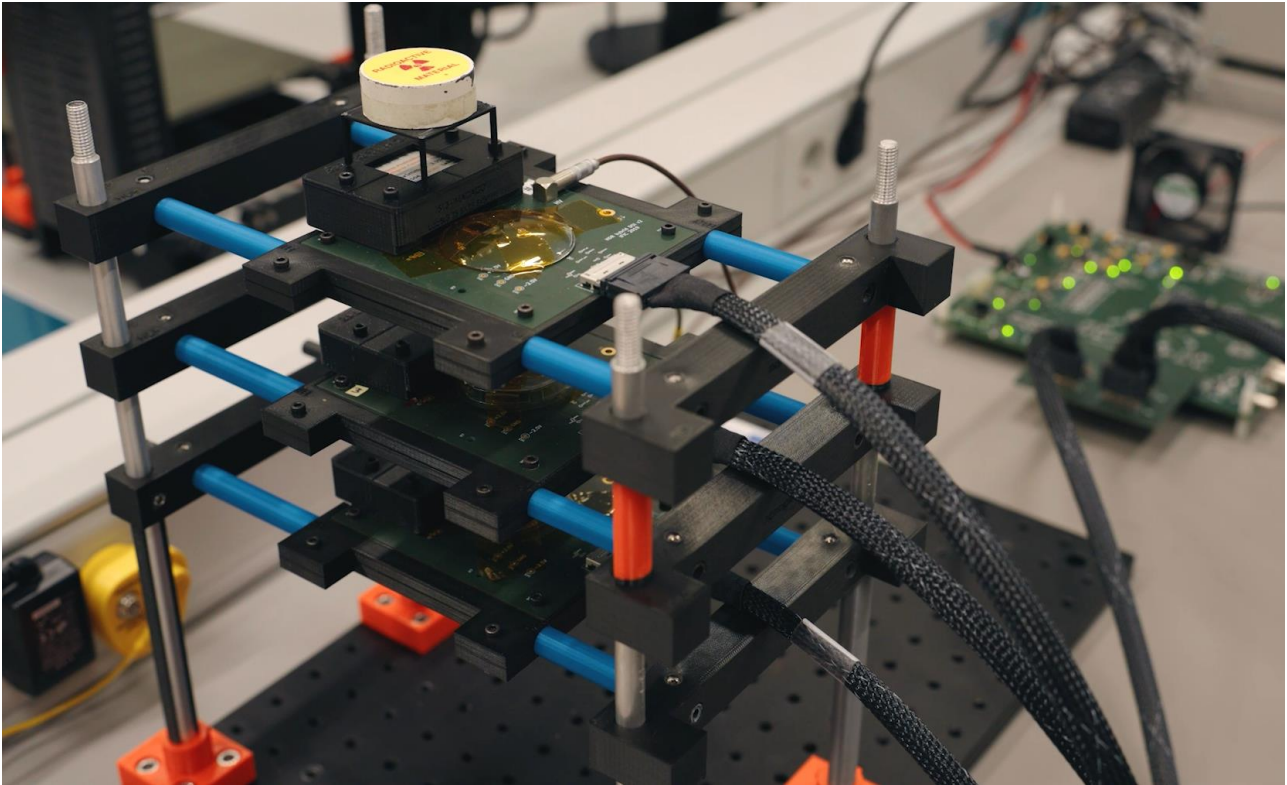


Image 1. Detection device assembled in the laboratory.

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