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Battelle Number(s):

10898-E

Patent(s) Issued

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Available Technologies

Real Time Sensor for Measuring Therapeutic Radiation

SUMMARY

In using radiation for medical treatment, it is critical that the amount and location of the radiation delivery be controlled as closely as possible. An error in radiation intensity can result in excessive tissue damage, or the radiation not accomplishing its intended purpose. An error in location can inadvertently cause damage to healthy tissue and organs and sometimes to critical organs such as the eyes or brain.

The technology developed at the Pacific Northwest National Laboratory allows a precise location and amount of radiation to be read in real time. This real-time information alerts the treatment provider to errors in radiation dosage and location.

The technology involves a probe that is placed near the area to be treated. The probe, which can be made quite small and inserted in the body, consists of a scintillation detector constructed of doped scintillation fiber optic material that creates a light signal for the particular type of radiation to be used in treatment. For example, one probe can be used for high energy neutrons, and another for x-rays and gamma ray photons, and yet a third for thermal and epithermal neutrons. The light signals from the probes travel down the fiber optic path and are interpreted through standard equipment such as photo-multiplier tubes, solid-state detection devices, and multi-channel analyzers to provide real time feedback.



Patents & Intellectual Property

- » Patent #: 5,704,890
- » Patent #: 6,151,769
- » Patent #: 6,551,231

Technology Portfolio(s)

- » Radiation Sensors
- » Biotechnology
- » Biomedical

Potential Industry Applications

- » Healthcare, Pharma, Biotech & Medical

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