

Microfluidic measurement system detecting ionizing radiation

Summary

Profile type	Company's country	POD reference
Technology offer	Germany	TODE20220729005
Profile status	Type of partnership	Targeted countries
PUBLISHED	Investment agreement Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
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General Information

Short summary

A German university developed a measuring device that detects radioactive isotopes emitting alpha radiation in liquid samples. This type of device can be used primarily to examine waste water and groundwater. The university offers a license agreement as well as a technology cooperation agreement.

Full description

Radioactive materials emit ionizing radiation that, even in minuscule amounts, can be harmful to health and environment, and permanently damage human tissue genetic material. This is why liquid waste at hospitals, mining facilities, nuclear reprocessing plants and radioactive waste repositories require continuous, in-situ monitoring in real time. This invention, a measuring device from a German university, detects radioactive isotopes emitting alpha radiation in liquid samples. Using microfluidic components, the aqueous sample is first passed through a filtering chamber, then into the detection chamber comprising a semiconductor detector and an MEMS heater. These components are protected by a chemically inert diamond coating between 20 nm and 1 µm in thickness. With this measuring device, radioactive material in close proximity to the detector is concentrated, which significantly increases signal strength. After measurement, the detection chamber is electrochemically sanitized. With this type of device, wastewater and groundwater in particular can be tested.

The university offers a license agreement to interested companies working in the field of environmental analytics metrology and safety technology applications. The university is especially interested in cooperating with companies who want to work together to continue to develop this technology, such as in publicly funded projects, under a

technology cooperation agreement.

Advantages and innovations

The special advantage of this measuring device is that the radioactive material is concentrated in the immediate vicinity of the detector, which significantly increases the signal strength. Other advantages are:

- Microfluidic measurement system
- In-situ measurement technique
- Micromechanical integration of heater with detector
- Protective diamond coating for superior reliability

Stage of development

Concept stage

IPR Status

IPR applied but not yet granted

Sustainable Development goals

• **Not relevant**

Partner Sought

Expected role of the partner

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Type of partnership

Investment agreement

Research and development cooperation agreement

Type and size of the partner

• **Other**

Dissemination

Technology keywords

• **09001009 - Sensor Technology related to measurements**

Targeted countries

• **World**

Market keywords

• **03007002 - Other measuring devices**

Sector groups involved