

# Department of Radiation Biophysics ( )



Radiation and radionuclides (radioactive sources) are widely used in medicine and industries. While, a number of accidents accompanied with unexpected excessive radiation exposure from those radioactive sources. In order to prevent the radiological hazard, it is crucial to quickly detect the radiation exposure, evaluate the accurate dose and then take appropriate medical actions according to the expected health effects. We are working on research related to these tasks for saving lives, for example, ...

## Application of fingernails for assessment of hand exposure of medical worker

There have been an increasing number of cases in which medical workers receive high doses on their fingers. Thus, we have been investigating practical dosimetry methods using fingernails coupled with the electron spin/paramagnetic resonance (ESR) device that can quantify the amount of free radicals generated in nails by ionizing radiations [1,2].



**Medical staff**



**Technicians**

## Development of gel dosimeter for 3D dose measurement in human body

We have been performing research and development of gel dosimeter which can be applied to

novel radiochromic gel dosimeter having low toxicity, high transparency, good chemical stability and excellent reusability [3].

## Development of robust system for prompt dosimetry of public exposure in accident

In order to enable each member of the public to take promptly appropriate medical treatment in an unexpected radiological accident, we have been developing a system for personal dosimetry by using robust, portable dosimeters that operate stably for a long period [4,5]



## REFERENCES

- [1] Gonzales et al. Radiat. Meas., **124**, pp. 91-97, 2019.
- [2] Gonzales et al. Radiat. Meas., **136**, 106337, 2020.
- [3] Taño et al. Radiat. Meas., **134**, 106311, 2020.
- [4] Yasuda et al. Radiat. Meas., **134**, 106309, 2020.
- [5] Yasuda et al. Radiat. Meas., **139**, 106474, 2020.

We are usually using English for communication in our department, though you can use Japanese as necessary. Please feel free to contact us anytime.



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