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A new radiation scale for the public: RAIN

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We are proposing a new radiation scale, RAIN (radiation index) for the general public who often suffers from misunderstanding and unnecessary fear of the radiation and radiation release accidents. RAIN is defined in dimensionless such as the seismic scale. RAIN is defined to scale the individual accumulated radiation dose originating from an arbitrarily-defined particular event such as a single medical CT examination, an intake of contaminated foods or an exposure due to a certain incident for a certain period of time. The practical range of RAIN value varies from zero to 10. To maximize the simplicity for the general public, the numerical value of RAIN shall retain no more than a single significant digit after decimal point. The reference dose is selected as 10 μSv in a year in this paper, based on the exemption and clearance levels which were suggested by IAEA. Some example values of RAIN are 0.8 for a typical chest X-ray examination (0.07 mSv), 2.9 for a CT examination (7.4 mSv), 3.7 for the maximum annual effective dose limit of a radiation worker (50 mSv), 5.6 for the lethal dose LD50/60 (4000 mSv) etc. We anticipate that this new definition of RAIN may serve the public and the experts to converse more correctly, easily and fruitfully.

Biography

Gyuseong Cho is a Professor of the Department of Nuclear and Quantum Engineering at KAIST (Korea Advanced Institute of Science and Technology) since 1994. He has expertise in design and evaluation of radiation detectors and radiation imaging systems for medical and industrial applications. Particularly he contributed to the development of digital radiography detectors based on the amorphous silicon as well as the brain PET systems based on the silicon photomultiplier. Currently he is the President of the Korean Society of Radiation Industry.

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