

A Critical View of Various Radiation Dosimetric Techniques.

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Abstract:

There has been tremendous increase in the application of ionising radiation in medicine, agriculture, basic and applied science and other industrial applications which involve hazard to man. Hence, there is an increasing need to optimize the benefits of the uses of nuclear energy for these activities through accurate and reliable dosimetric systems. This work reports a critical view of various dosimetric techniques with the intent and purpose of evaluating the extent to which quantities such as energy of radiation, dose rate, environmental parameters, fading, linearity, direction of incidence, electrical requirements, methods of calibration, etc, contribute to uncertainties in dose values. The limits within which certain accuracy holds for these techniques were used to pin-point proper areas of safe and reliable applications. Areas for further studies in concepts and methods of these techniques are also discussed.

A national survey of existing dosimetric systems at several places of radiological and nuclear facilities in Nigeria was conducted and result of analysis which reflects lack of adequate dosimetric systems sufficient to meet the required optimisation of benefits of these of ionising radiation is presented. Lastly, steps in organising an efficient regulatory body, backed up by appropriate law, to deal with licensing, inspection and regulation of the use of ionising radiation within the country are presented. This is utterly important and necessary if the current abuses of the uses of ionising radiation are to be stopped.

Keywords: dosimetric technique/ ionizing radiation/ nuclear energy/ radiation

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