

spectrum  $Q^*E$ , the exact values depending on the measuring system and the patient geometry. For comparison purposes, a radiological examination of the lumbar spine requires a 1 mSv patient effective dose.

**IPEN-DOC-5904**  
5904 ✓

Paper C22

**DEVELOPMENT OF NEW METHODOLOGY FOR DOSE CALCULATION IN PHOTOGRAPHIC DOSIMETRY**

T. F. L. Daltro and L. L. Campos (Instituto de Pesquisas Energéticas e Nucleares, CNEN/SP, C.P. 11049, CEP 05422-970, São Paulo, SP, Brazil)



A new methodology for equivalent dose calculation has been developed at IPEN-CNEN/SP to be applied at the Photographic Dosimetry Laboratory using artificial intelligence techniques by means of neural network. The research was orientated towards the optimisation of the whole set of parameters involved in the film processing going from the irradiation in order to obtain the calibration curve, up to the optical density reading. The learning of the neural network was performed by taking the readings of optical densities from the calibration curve as input, and the effective energy and equivalent dose as output. The obtained results in the intercomparison show an excellent agreement with the actual values of dose and energy given by the National Metrology Laboratory of Ionising Radiation.