

**STUDI AWAL UJI PERANGKAT KAMERA GAMMA DUAL HEAD  
MODEL PENCITRAAN *SINGLE PHOTON EMISSION COMPUTED  
TOMOGRAPHY* (SPECT) MENGGUNAKAN SUMBER RADIASI *HIGH  
ENERGY I<sup>131</sup>***

**ABSTRAK**

Telah dilakukan penelitian mengenai studi awal pengujian perangkat kamera gamma *dual head* model pencitraan *Single Photon Emission Computed Tomography* (SPECT) menggunakan sumber radiasi *high energy I<sup>131</sup>* di Bidang Teknik Nuklir Kedokteran (TNK) Pusat Teknologi Keselamatan dan Metrologi Radiasi (PTKMR) Badan Tenaga Nuklir Nasional (BATAN), Jakarta Selatan. Pada penelitian dilakukan pengujian dengan mencacah *I<sup>131</sup>* dengan melihat pengaruh yang dihasilkan dari perubahan sudut terhadap laju cacahan menggunakan kolimator *High Energy General Purpose* (HEGP), tanpa kolimator, *phantom linier*, dan *phantom jaszczak*. Selain itu dilakukan analisa akumulasi sumber radiasi menggunakan teknik *Region of Interest* (ROI). Dari hasil pengujian didapatkan nilai laju cacahan pada saat tanpa kolimator lebih tinggi dibandingkan saat menggunakan kolimator HEGP, serta didapatkan bahwa detektor kamera gamma menangkap paparan sumber radiasi dengan baik dan tidak terjadi kerusakan pada detektor. Hasil akumulasi radiasi menggunakan teknik ROI membuktikan bahwa tiap detektor tidak sama menangkap laju cacahan dari sumber radiasi.

Kata kunci: kamera gamma *dual head*, SPECT, kolimator HEGP, *phantom linier*, *phantom jaszczak*, laju cacahan

**PRELIMINARY TEST OF DUAL HEAD GAMMA CAMERA SINGLE  
PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT) IMAGING  
USING HIGH ENERGY RADIATION SOURCE I<sup>131</sup>**

**ABSTRACT**

A preliminary study on the performance of a dual head Single Photon Emission Computed Tomographic (SPECT) gamma camera at Center of Technology of Radiation Safety and Metrology (PTKMR) of National Nuclear Energy Agency (BATAN) has been examined by using high energy radiation from I<sup>131</sup>. The performance was investigated from the influence of angle change on count rate for the system with High Energy General Purpose (HEGP) collimator, without any collimator, and with linier and jaszczak phantoms. Moreover, the accumulation of radiation was analyzed using the Region of Interest (ROI) technique. It was found that the count rate for the measurement without any collimator was largerer than the measurement with HEGP collimator. In addition, the result showed that the gamma camera detector captures the radiation exposure well, indicating that no damage occurs in the detector. The ROI technique verified that each detector has different count rate from radiation source.

Keyword: dual head gamma camera, SPECT, I<sup>131</sup>, linier phantom, jaszczak phantom, count