LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul Jurnal Ilmiah (Artikel)	:	Development of a novel artifact-free eye shield based on silicon rubber-lead composition in the CT examination ofthe head		
Nama/ Jumlah Penulis	:	6 Orang		
Status Pengusul	:	~~Penulis pertama~~/ ~~Penulis ke~~ / Penulis Korespondesi **		
Identitas Jurnal Ilmiah	:	a. Nama Jurnal	:	Journal of Radiological Protection
		b. Nomor ISSN	:	0952-4746, eISSN : 1361-6498
		c. Vol, No., Bln Thn	:	Vol 39 No 4, Juni 2020 Hal 991-1005
		d. Penerbit	:	IOP Publishing Ltd.
		e. DOI artikel (jika ada)	:	10.1088/1361-6498/ab2f3e
		f. Alamat web jurnal	:	https://iopscience.iop.org/article/10.1088/1361-6498/ab2f3e
		Alamat Artikel	:	berbayar
		g. Terindex	:	Scopus (Q3, SJR 0,44)

Kategori Publikasi Jurnal Ilmiah (beri ✓pada kategori yang tepat)	:	√ ~~Jurnal Ilmiah Internasional~~/Internasional Bereputasi
		Jurnal Ilmiah Nasional Terakreditasi
		Jurnal Ilmiah Nasional Tidak Terakreditasi

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Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi jurnal (10%)	4,00	4,00	4,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	12,00	11,00	11,50
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	11,90	11,00	11,45
d. Kelengkapan unsur dan kualitas penerbit (30%)	11,90	12,00	11,95
Total = (100%)			38,90
Nilai untuk Pengusul : 40% x 38,90 = 15,56			

Semarang, 8 Maret 2023

Reviewer 1

Prof. Dr. Rahmat Gernowo, M.Si
NIP. 196511231994031003
Unit Kerja: FSM Universitas Diponegoro
Bidang Ilmu: Fisika

Reviewer 2

Prof. Dr. Kusworo Adi, S.Si., M.T.
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Unit Kerja: FSM Universitas Diponegoro
Bidang Ilmu: Fisika

LEMBAR
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Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
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a. Kelengkapan unsur isi jurnal (10%)	4			4,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			12,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	12			11,90
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			11,90
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Nilai Pengusul = 40% x 39,8 = 15,92				

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2. **Ruang lingkup dan kedalaman pembahasan:**
   Pembahasan dengan menggunakan metoda yang diusulkan dalam artikel cukup komprehensip. Diskusi telah dilakukan dengan para peneliti lain melalui referensi yang disitasi. Sebuah artikel yang menarik.
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Semarang, 1 Maret 2023
Reviewer 1

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Unit Kerja : Fisika
Bidang Ilmu: Fakultas Sains dan Matematika

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
	Internasional √	Nasional Terakreditasi ☐	Nasional Tidak Terakreditasi ☐	
a. Kelengkapan unsur isi jurnal (10%)	4			4,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			11,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	12			11,00
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			12,00
Total = (100%)	**40**			**38,00**
Nilai Pengusul = 40% x 38,00 = 15,20				

Catatan Penilaian artikel oleh Reviewer :

1. **Kelengkapan unsur isi jurnal:** Penulisan artikel sudah baik dan mengikuti standard penulisan artikel di jurnal, yaitu Abstract, Introduction, Materials and Method, Result and Discussion, Conclusions, Acknowledgement and References. Substansi artikel sesuai bidang ilmu pengusul.
2. **Ruang lingkup dan kedalaman pembahasan:** Lingkup bahasan dari artikel ini adalah bidang fisika. Pembahasan cukup baik yaitu mengembangkan pelindung mata bebas artefak baru dan mengevaluasi efeknya pada dosis yang diterima oleh lensa mata dan kualitas gambar yang dihasilkan dalam pemeriksaan CT kepala. Material baru untuk pelindung mata disintesis dari karet silikon (SR) dan timbal (Pb) menggunakan metode sederhana. Kedalaman pembahasan baik.
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:** Informasi yang disajikan cukup baru dan hasil yang diperoleh memuat substansi orisinil dengan aspek aplikasi yang penting. Sumber gagasan penulis untuk artikel ini banyak dan komprehensif. Dari 30 referensi yang dipakai terdapat 6 paper yang lebih dari 10 tahun terakhir (out of date). Metodologinya baik dan penulisannya terstruktur.
4. **Kelengkapan unsur dan kualitas terbitan:** Artikel dimuat di Journal of Radiological Protection, pada Vol 39 No 4, Juni 2020 Hal 991-1005. Diterbitkan oleh IOP Publishing Ltd.. Journal terindeks Scopus (Q3, SJR 0,44).

Semarang, 1 Maret 2023
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Development of a novel artifact-free eye shield based on silicon rubber-lead composition in the CT examination of the head

Irdawati, Yulia[a]; Sutanto, Heri[a] ; Anam, Choirul[a]; Fujibuchi, Toshioh[b]; Zahroh, Fatimatuz[a]; Dougherty, Geoff[c]

Save all to author list

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Abstract

The aim of this work was to develop a novel artifact-free eye shield and evaluate its effect on the dose received by the eye lens and the resulting image quality in the CT examination of the head. A new material for an eye shield was synthesised from silicon rubber (SR) and lead (Pb) using a simple method. The percentage of Pb was varied from 0 to 5% wt. An anthropomorphic head phantom was scanned with and without the SR-Pb eye shield, and compared with a tungsten paper (WP) eye shield. The distance from the eye shield and head was varied from 0 to 5 cm. The dose to the eye lens was measured using photo-luminescence detectors (PLDs). The presence of artifacts was determined by measuring CT numbers at different eye lens locations and by subtracting images with and without the eye shield. The dose reduction increases with increasing Pb content in the SR-Pb eye shield. A 5% wt SR-Pb eye shield reduced the eye lens dose by up to 50%, whereas the WP eye shield reduced the dose by up to 86%. The CT numbers in images with the SR-Pb eye shield in the regions of both eyes and the center of the head phantom is similar to those without the eye shield, indicating that there is no artifact in the resulting image. Using the WP eye shield, there is considerable artifact with the CT number increasing by up to 700% in the regions of both eyes and the center of the head. It is found that the distance between the SR-Pb eye shield and the head does not affect either the dose or the resulting images. A SR-Pb-based eye shield can be applied in clinical environments and should be placed directly above the eye surface for dose optimisation.

Author keywords

artifact free; CT scan; eye shield; head CT examination; silicone rubber

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Assessment of radioactive cesium deposition using ground-based gamma-ray spectrometry with a $LaBr_3(Ce)$ detector

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Perinatal mortality after the Fukushima accident: a spatiotemporal analysis

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Abstract

Objective. This study investigates the trend of perinatal mortality rates in Fukushima Prefecture and four neighboring prefectures (Miyagi, Gunma, Tochigi, and Ibaraki) after the disaster at the Fukushima Daiichi nuclear power plant in March 2011. *Material and methods.* Japanese monthly perinatal mortality data on a prefecture level are available on a website of the Japanese government. A combined regression of perinatal mortality rates from the study region and the rest of Japan (the control region) is conducted. The regression model allows for an asymptotic lower limit and a level change of perinatal mortality rates in 2012–2017 in the study region relative to the predicted trend. *Results*. In 2012–2017, perinatal mortality in the study region shows a significant 10.6% increase relative to the trend in preceding years ($p = 0.006$). The excess mortality translates to 195 (95% CI: 28, 462) excess perinatal deaths. The increase is three times greater in Fukushima Prefecture than in the four neighboring prefectures and the difference in excess rates is statistically significant ($p = 0.010$). Periodic peaks of perinatal mortality are found in 2012–2017 with maxima around April. *Conclusion*. We find an increase in perinatal mortality in Fukushima and four neighboring prefectures after the Fukushima nuclear accident. The results agree with similar observations in Germany and Ukraine after the Chernobyl disaster. Due to its ecological design, the study cannot prove a causal link between radiation exposure and perinatal mortality. Continued observation of the trend of perinatal mortality in contaminated regions of Japan is recommended.

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