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## ESPS PEER-REVIEW REPORT

**Name of journal:** World Journal of Radiology

**ESPS manuscript NO:** 30626

**Title:** Three-dimensional radiation dosimetry using polymer gel and solid radiochromic polymer: From basics to clinical applications

**Reviewer's code:** 00742454

**Reviewer's country:** Turkey

**Science editor:** Fang-Fang Ji

**Date sent for review:** 2016-10-13 08:25

**Date reviewed:** 2016-11-03 16:28

CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
<input type="checkbox"/> Grade A: Excellent	<input type="checkbox"/> Grade A: Priority publishing	Google Search:	<input type="checkbox"/> Accept
<input type="checkbox"/> Grade B: Very good	<input type="checkbox"/> Grade B: Minor language polishing	<input type="checkbox"/> The same title	<input type="checkbox"/> High priority for publication
<input type="checkbox"/> Grade C: Good		<input type="checkbox"/> Duplicate publication	
<input checked="" type="checkbox"/> Grade D: Fair	<input checked="" type="checkbox"/> Grade C: A great deal of language polishing	<input type="checkbox"/> Plagiarism	<input type="checkbox"/> Rejection
<input type="checkbox"/> Grade E: Poor	<input type="checkbox"/> Grade D: Rejected	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Minor revision
		BPG Search:	<input checked="" type="checkbox"/> Major revision
		<input type="checkbox"/> The same title	
		<input type="checkbox"/> Duplicate publication	
		<input type="checkbox"/> Plagiarism	
		<input checked="" type="checkbox"/> No	

### COMMENTS TO AUTHORS

This study aims to provide an objective measuring tool for the dosimetry. However, the presented results are rather conflicting and requires intensive classification in terms of scientific clarity. This will also improve the readability of the manuscript.



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**Name of journal:** World Journal of Radiology

**ESPS manuscript NO:** 30626

**Title:** Three-dimensional radiation dosimetry using polymer gel and solid radiochromic polymer: From basics to clinical applications

**Reviewer's code:** 00068723

**Reviewer's country:** Japan

**Science editor:** Fang-Fang Ji

**Date sent for review:** 2016-10-13 08:25

**Date reviewed:** 2016-11-09 06:01

CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
<input type="checkbox"/> Grade A: Excellent	<input type="checkbox"/> Grade A: Priority publishing	Google Search:	<input type="checkbox"/> Accept
<input type="checkbox"/> Grade B: Very good	<input checked="" type="checkbox"/> Grade B: Minor language polishing	<input type="checkbox"/> The same title	<input type="checkbox"/> High priority for publication
<input checked="" type="checkbox"/> Grade C: Good	<input type="checkbox"/> Grade C: A great deal of language polishing	<input type="checkbox"/> Duplicate publication	<input type="checkbox"/> Rejection
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade D: Rejected	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Minor revision
<input type="checkbox"/> Grade E: Poor		BPG Search:	<input type="checkbox"/> Major revision
		<input type="checkbox"/> The same title	
		<input type="checkbox"/> Duplicate publication	
		<input type="checkbox"/> Plagiarism	
		<input checked="" type="checkbox"/> No	

### COMMENTS TO AUTHORS

Dosimetry is important for accurate and safe irradiation therapy for cancers. This manuscript summarized current status of dosimetry. The manuscript was well-organized and informative. Presentation would make this manuscript easier to understand regarding the most popular dosimetry in hospital. This part would reveal problems to solve, and be a good introduction to this article. If figures illustrated the methods of dosimetry, readers would imagine the methods and be more attracted to this review.



**ESPS PEER-REVIEW REPORT**

**Name of journal:** World Journal of Radiology

**ESPS manuscript NO:** 30626

**Title:** Three-dimensional radiation dosimetry using polymer gel and solid radiochromic polymer: From basics to clinical applications

**Reviewer's code:** 00289418

**Reviewer's country:** Greece

**Science editor:** Fang-Fang Ji

**Date sent for review:** 2016-10-13 08:25

**Date reviewed:** 2016-11-16 17:18

CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
<input type="checkbox"/> Grade A: Excellent	<input type="checkbox"/> Grade A: Priority publishing	Google Search:	<input type="checkbox"/> Accept
<input type="checkbox"/> Grade B: Very good	<input checked="" type="checkbox"/> Grade B: Minor language polishing	<input type="checkbox"/> The same title	<input type="checkbox"/> High priority for publication
<input checked="" type="checkbox"/> Grade C: Good		<input type="checkbox"/> Duplicate publication	
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade C: A great deal of language polishing	<input type="checkbox"/> Plagiarism	<input type="checkbox"/> Rejection
<input type="checkbox"/> Grade E: Poor	<input type="checkbox"/> Grade D: Rejected	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Minor revision
		BPG Search:	<input checked="" type="checkbox"/> Major revision
		<input type="checkbox"/> The same title	
		<input type="checkbox"/> Duplicate publication	
		<input type="checkbox"/> Plagiarism	
		<input checked="" type="checkbox"/> No	

**COMMENTS TO AUTHORS**

**GENERAL COMMENTS** This paper is a very interesting review of 3D dosimetry in radiotherapy. Though in its present form is not ready for publication, I think that it has the potential to become an excellent review paper, indeed. Almost all the information needed is already there; it only needs better presentation. I feel that the authors attempted to cover the whole subject of 3D dosimetry, not only gels, in a single article, making it at some point difficult for me to follow. Probably this is due to the fact that the authors did not limit the conversation to gels as the title suggested but expanded the conversation to other dosimeters as well. Also at some points they started to make comparisons of gels with other dosimeters, in some fields where the other dosimetry systems (e.g. water tank and ionization chamber dosimetry) are both well established and better suited. What I also feel is missing, is information concerning the possibility of the different kind of gels to be read more than one time or whether some or all of the reading procedures affect in some way the information contained. Also some information whether some of these gels could be reused after some processing would be interesting. Concerning the language, the paper is in general well written, but at some



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points there is room for improvement. Overall, my proposal is “Major Revision”

**Abstract 1.** These are available in the gel form, polymer gel dosimeter (PGD) or ferrous gel dosimeter (FGD) and in the solid form, solid radiochromic polymer, or solid plastic, dosimeter (SPD). An abbreviation for the radiochromic polymer is needed or is it also considered SPD. There are too many commas and is a little confusing.

**Introduction 2.** The introduction has to be rewritten for better focus. For treatment planning purposes, in order to build the beam model in a treatment planning system data collection is made point-by-point using a water phantom and an appropriate dosimeter. Scanning to all three axis is used to acquire information adequate to build the 3D model of the beam. Both relative and absolute dosimetry is required and there is some limitation concerning the accuracy of the measurements due to errors that start from the calibration factor of the instrument and many more. Now the use of 3D dosimeters application field is the comparison of the 3D dose distributions calculated by the TPS with the actually dose delivered in the patient or in a phantom that mimics the patient or is used as a surrogate of the patient.

**3. stereotactic abrasive radiation therapy (SART).** I think you mean “ablative”

**4.** Also I don’t understand why you use multi-dimensional and not 3D. Do you imply any 4th or other dimension?

**3D DOSIMETER 5.** If I’ve understood well, the first two paragraphs should serve as a secondary introduction to the types of 3D dosimeters available or under investigation. So there is no need to get into details for those dosimeters that would be analyzed later. For the 2nd paragraph I would prefer a bullet like presentation structure.

**6.** “Therefore, we focus the 3D dosimeters of PGD, SPD, and FGD in the rest of this article.” Rephrase; you focus on specific dosimeters.

**Water equivalency 7.** “This definition of water equivalency also applies to heavier charged particles such as protons and heavy ions. In other words, the equivalency often depends on the radiation energy”. The second sentence is not arising from the first. The energy dependence when we talk about photons or electrons is one thing and another thing is when we talk about other types of radiation like protons or alpha particles.

**DOSE QUANTIFICATION TECHNIQUES 8.** I feel that in the first paragraph you want to say that these dosimeters have to be calibrated; this is both valid for absolute dosimetry but also for relative dosimetry purposes also, especially if their response to dose is not linear.

**X-ray computed tomography (XCT) 9.** “If it works, it is the”. Do you mean that i