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Journal Name:	<u>Physical Science International Journal</u>
Manuscript Number:	Ms_PSIJ_23331
Title of the Manuscript:	Preparation and Testing the Hyperthermia Property of Electrospun Micro and Nanofibers
Type of the Article	Original Research Articles

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>This manuscript describes the fabrication and hyperthermia properties of Co-containing electrospun fibers. Unfortunately, I find this work not acceptable for publication due to the following reasons:</p> <ul style="list-style-type: none"> - The objective of this work is not clearly stated. The introduction is very general, focusing on the electrospinning process and its advantages over other fiber fabrication methods, whereas at the end of the introduction the authors refer to the use of cobalt in ceramic alloys, super-alloys and in the form of oxides targeting towards wear and corrosion resistance, energy conversion, and electronic applications. There is no discussion in the introduction part on the use of Co-containing nanomaterials in hyperthermia applications. -The experimental section lacks essential information whereas mistakes can be also found. For example, the authors in page 6 state that they have generated titanium cobalt oxide nanoparticles; however titanium does not appear at all in the experimental section (lines 64-67). What is the molecular weight of PVP used? What is the flow rate employed in electrospinning? What is the power employed in the microwave during heating? Did the authors investigate the effect of the inorganic filler loading on the heating capability of the fibers? -In the results and discussion part, the authors state that "...the temperature is already over 40 oC which is a typical temperature level for virus or cells to start degradation". It is not clear how these materials could be employed in biomedical applications as templates for hyperthermia treatment. The unheated fibers based on PVP dissolve in water, whereas the heat treated analogues are suffering from brittleness. Moreover, the potential toxicity of the Co-containing fibers is not discussed in the text. 	<p>To address the reviewer's comments, the following corrections are made in the updated version.</p> <ol style="list-style-type: none"> 1-We inserted several sentences to accommodate the objective of the present work in the last part of the INTRODUCTION. 2-More experimental details are added to clarify the composition, methods, and procedures. 3- The molecular weight of PVP used is 1,300,000. This is given in the new version. 4-The flow rate employed in electrospinning is 0.05 ml/min. 5-The power employed in the microwave during heating is 900 W. 6-The effect of the inorganic filler loading on the heating capability of the fibers is not examined in details in this paper, We plan to do the comparative studies. 7-The reviewer raised a good question on how these materials could be employed in biomedical applications. At this time, we are focusing on some fundamental issues such as the response of the materials to the electromagnetic waves. More in-depth studies should be carried out in our succeeding work. 8- How the fibres are aligned is explained in the new version. The alignment is controlled by the electric force and mechanical stretching.



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	<p>-The authors present differences in the hyperthermia results obtained before and after heat treatment of the fibers but they do not provide any explanation or discuss why such differences are observed and where those could be attributed.</p> <p>-It is surprising that the fibers appearing in Fig. 6a are aligned; no means of alignment has been described in the experimental section (e.g. rotating mandrel, auxiliary electrodes, etc.). Why the fibers lose their alignment after heat treatment? The scale bars in the images appearing in Fig. 6 are not clearly indicated.</p> <p>-The authors claim that they have obtained titanium cobalt nanofibers; however no experimental data are provided to support this statement. Moreover, it is stated that “the microstructure of the sample under study shows titanium cobalt oxide nanoparticles embedded into heat treated nanofibers”. This statement is not supported by experimental data (e.g. TEM analysis)</p> <p>- Surprisingly, at the end of the results and discussion part the authors refer generally to the use of electrospun fibers in PEM fuel cells. This is completely irrelevant to the manuscript’s objectives.</p>	<p>9-The differences in the hyperthermia results obtained before and after heat treatment of the fibers are discussed in the corrected version. As for why such differences are observed and where those could be attributed, we believe that the structure change into partially carbonized state is the major reason.</p> <p>10-Why the fibers lose their alignment after heat treatment? This is because the shrinkage of the fibers due to carbonization under heat treatment condition. The small molecules are evaporating and get out of the fibers.</p> <p>11-TEM analysis on the titanium cobalt oxide nanoparticles after heat treatment is presented in the new version.</p> <p>12-The content about the use of electrospun fibers in PEM fuel cells is removed from the paper as it is not so relevant to the manuscript’s objective.</p>
Minor REVISION comments	<p>Page 1, introduction. The phrase “electrospinning is accomplished by dissolving the desired nanofiber material in a conductive liquid solvent” is not correct. References must not be placed in the abstract.</p> <p>Page 3, line 70, 10 KV voltage (not charge)</p>	<p>1- The wrong phrase “electrospinning is accomplished by dissolving the desired nanofiber material in a conductive liquid solvent” is modified in the new version.</p> <p>2-Reference in the Abstract section is removed per the reviewer’s suggestion.</p> <p>3-Page 3, line 70 was rechecked and modified.</p>
Optional/General comments		