ACTA IMEKO Journal,

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Object: paper submission

Pavia, 03/03/2021

Dear Editors,

 It’s a pleasure to submit our manuscript of Maduka L. Weththimuni et al, entitled with “**ZrO2-doped ZnO-PDMS nanocomposites as protective coatings for the stone materials”** to the “ Special Issue of Acta IMEKO Journal”.

The main aim of this study was to develop ZrO2-doped ZnO-PDMS nanocomposites thin films with enhanced photo-response activity to be used as self-cleaning protective coatings in the field of monument conservation. The protective coatings elaborated in this work are intended to have different properties: water repellent features, and self-cleaning activity.

For this purpose, ZnO doped ZrO2 nanoparticles have been prepared by a sol-gel method in order to enhance the photocatalytic properties of ZnO. Then, ZrO2-ZnO-PDMS nanocomposite (PDMS, polydimethylsiloxane used as the binder) was synthesized by in-situ reaction. The resulting nanocomposite has been investigated as a possible protective material for cultural heritage building substrates. Therefore, it has been applied to three different stones (Lecce stone, Carrara Marble and Brick) in order to evaluate the protective properties of the resulting coating.

**A list of modification and improvement of the original long abstract in the MetroArcheo 2020 congress**

* The topic has been changed
* Some changes have been done in the abstract as well as an introduction
* In the results and discussion part, we have inserted more results related to the optical microscope analysis, color measurements and self-cleaning properties. Hence, Table 1 and Figure 2, 3, and 4 are new.
* We have added more references according to the changes in the introduction (3, 4, 5, 6, 17, and 18)

With the submission of this manuscript, I would like to undertake that the above mentioned manuscript has not been published elsewhere, accepted for publication elsewhere or under editorial review for publication elsewhere; and that all the authors and my Institute’s University of Pavia representative is fully aware of this submission.

I hope that the paper would be worth considering for the publication.

Best regards

 Weththimuni Maduka Lankani