



Uyi Sulaeman &lt;sulaeman@unsoed.ac.id&gt;

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## Invitation to review for Materials Science in Semiconductor Processing

1 message

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**Materials Science in Semiconductor Processing** <em@editorialmanager.com>  
Reply-To: Materials Science in Semiconductor Processing <support@elsevier.com>  
To: Uyi Sulaeman <sulaeman@unsoed.ac.id>

Wed, Mar 23, 2022 at 11:37 AM

Manuscript Number: MSSP-D-22-00424

0D/2D Ag<sub>3</sub>PO<sub>4</sub>/biotite nanocomposites for efficient visible-light-driven tetracyclic hydrochloride degradation

Yuxiang Hua; Xueqin Liu; Pengfei Li; Chenyao Hu; Shenming Chen; Xiaoheng Liu

Dear Sulaeman,

I would like to invite you to review the above referenced manuscript submitted by Professor Xiaoheng Liu , as I believe it falls within your expertise and interest. The abstract for this manuscript is included below.

You should treat this invitation, the manuscript and your review as confidential. You must not share your review or information about the review process with anyone without the agreement of the editors and authors involved, even after publication. This also applies to other reviewers' "comments to author" which are shared with you on decision (and vice versa). If, as part of your review, additional references are suggested, the complete reference, including all authors, article title, and DOI (if applicable) must be included. If you believe one of your own papers has been neglected by the authors and should be included, a detailed justification is required.

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Kind regards,

Aracely Hernandez-Ramirez

Editor

Materials Science in Semiconductor Processing

Abstract:

Environmental problems caused by wastewater that contains antibiotics have attracted wide attention. Photocatalysis is a green and environmental friendliness method for dealing with the environment pollution. In this work, Ag<sub>3</sub>PO<sub>4</sub>/biotite composite photocatalysts were constructed by room-temperature precipitation route. The two-dimensional biotite was used as supporting matrix and dispersant for depositing size-tunable Ag<sub>3</sub>PO<sub>4</sub> nanoparticles. The photocatalytic activity of the constructed catalysts was assessed by photocatalytic degradation of tetracycline hydrochloride (TCH). Compared with the pure Ag<sub>3</sub>PO<sub>4</sub>, the synthesized Ag<sub>3</sub>PO<sub>4</sub>/biotite nanocomposites exhibited improved catalytic activity. The apparent kinetics constant of the optimized sample is about 2.28 times as high as the Ag<sub>3</sub>PO<sub>4</sub>. Based on the systematically characterization, the improved photocatalytic activity can be attributed to the enlarged specific surface area, the efficient separation and transfer of the photoexcited charge carriers.

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0D/2D Ag<sub>3</sub>PO<sub>4</sub>/biotite nanocomposites for efficient visible-light-driven tetracycline hydrochloride degradationOriginal Submission  
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The subject addressed in this article is worthy of investigation.

Agree

The information presented is new.

Agree

The conclusions are supported by the data

Neutral

The manuscript is appropriate for the journal.

Agree

Organization of the manuscript is appropriate.

Agree

Figures, tables and supplementary data are appropriate.

Agree

## Reviewer Comments to Author

The manuscript reported the Ag<sub>3</sub>PO<sub>4</sub>/biotite composite photocatalysts. The biotite was used as a supporting matrix and dispersant for the new photocatalysts. Their photocatalytic activities were evaluated using tetracycline hydrochloride (TCH) degradation. The results showed that the apparent kinetics constant of the optimized sample is 2.28 times higher compared to the Ag<sub>3</sub>PO<sub>4</sub>. The improved photocatalytic activity can be attributed to the enlarged specific surface area, and the efficient separation and transfer of the photoexcited charge carriers. This manuscript has high novelty, however, some data that is weird should be revised before publication. Here are my comments:

1. The size of Ag<sub>3</sub>PO<sub>4</sub> nanoparticles is gradually reduced with the increased addition of biotite in the composite catalyst, indicating that the addition of biotite can reduce the size of Ag<sub>3</sub>PO<sub>4</sub> and improve its dispersion. The reason for size reduction should be explained.
2. In Figure 2(b), the deconvolution of O1s is weird, it seems a huge difference in FWHM, especially for O1s of AP at 531.93 eV. The author should explain why the spectra of O1s exhibit a large difference in FWHM. The deconvolution of this curve should be checked again.
3. In figure 2(d), the authors exhibited the peak of Si 2p for BAP20, at 103.5 eV. The sample AP (Ag<sub>3</sub>PO<sub>4</sub>) should not contain Si 2p.
4. In Fig 2(e), the deconvolution showed that the peak intensity of 2p<sub>3/2</sub> (132.42 eV) is lower than the peak of 2p<sub>1/2</sub> (133.36 eV). It contradicts the XPS principle that the peak intensity of 2p<sub>3/2</sub> should be higher than the peak of 2p<sub>1/2</sub> with the intensity ratio of 2:1.
5. The bandgap energy of Ag<sub>3</sub>PO<sub>4</sub> might be changed after contact with biotite, therefore authors should calculate the bandgap energy in BAP-20.
6. In Fig 5(a), the results of photocatalytic showed (0-10 min) is very fast, and then slows down. It is very difficult to compare the sample. The photocatalytic activity looks not so high different. Authors should show the linearity (r<sup>2</sup>) of the apparent kinetic constant.
7. The biotite has high surface area, however, it does not exhibit adsorption as shown in Fig 5(a). While after adding Ag<sub>3</sub>PO<sub>4</sub>, the adsorption is high especially in BAP30. Where does the improved adsorption originate?
8. The generation of \*O<sub>2</sub>— might be attributed to the activation of soluble oxygen by the localized surface plasmon resonance effect of metallic Ag formed during the photodegradation process. Do authors have evidence of localized surface plasmon resonance?

## Reviewer Confidential Comments to Editor:

This manuscript has high novelty, however, some data is weird especially the XPS deconvolution and the apparent kinetic constant.

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Uyi Sulaeman &lt;sulaeman@unsoed.ac.id&gt;

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## Thank you for reviewing for Materials Science in Semiconductor Processing

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Wed, May 25, 2022 at 4:09 PM

Manuscript Number: MSSP-D-22-00424R1

0D/2D Ag<sub>3</sub>PO<sub>4</sub>/biotite nanocomposites for efficient visible-light-driven tetracyclic hydrochloride degradation

Yuxiang Hua; Xueqin Liu; Pengfei Li; Chenyao Hu; Shenming Chen; Xiaoheng Liu

Dear Sulaeman,

Thank you for reviewing the above referenced manuscript. I greatly appreciate your contribution and time, which not only assisted me in reaching my decision, but also enables the author(s) to disseminate their work at the highest possible quality. Without the dedication of reviewers like you, it would be impossible to manage an efficient peer review process and maintain the high standards necessary for a successful journal.

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Aracely Hernandez-Ramirez

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**Uyi Sulaeman** <sulaeman@unsoed.ac.id>

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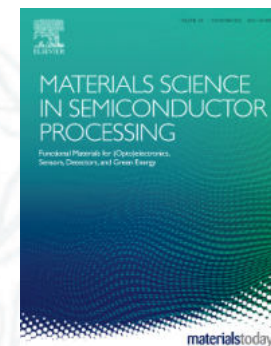
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Materials Science in Semiconductor Processing

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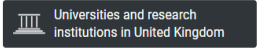
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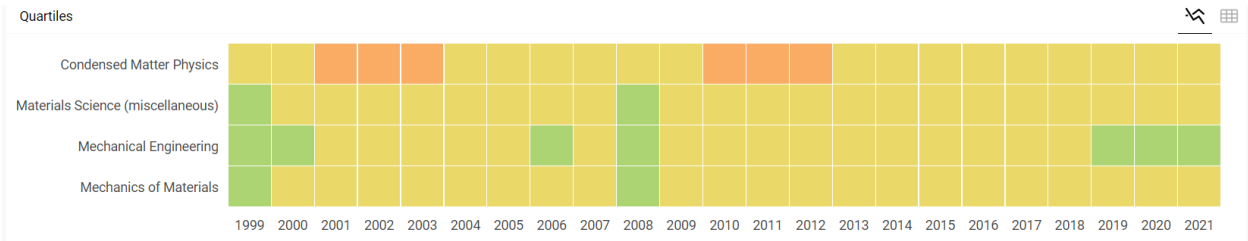


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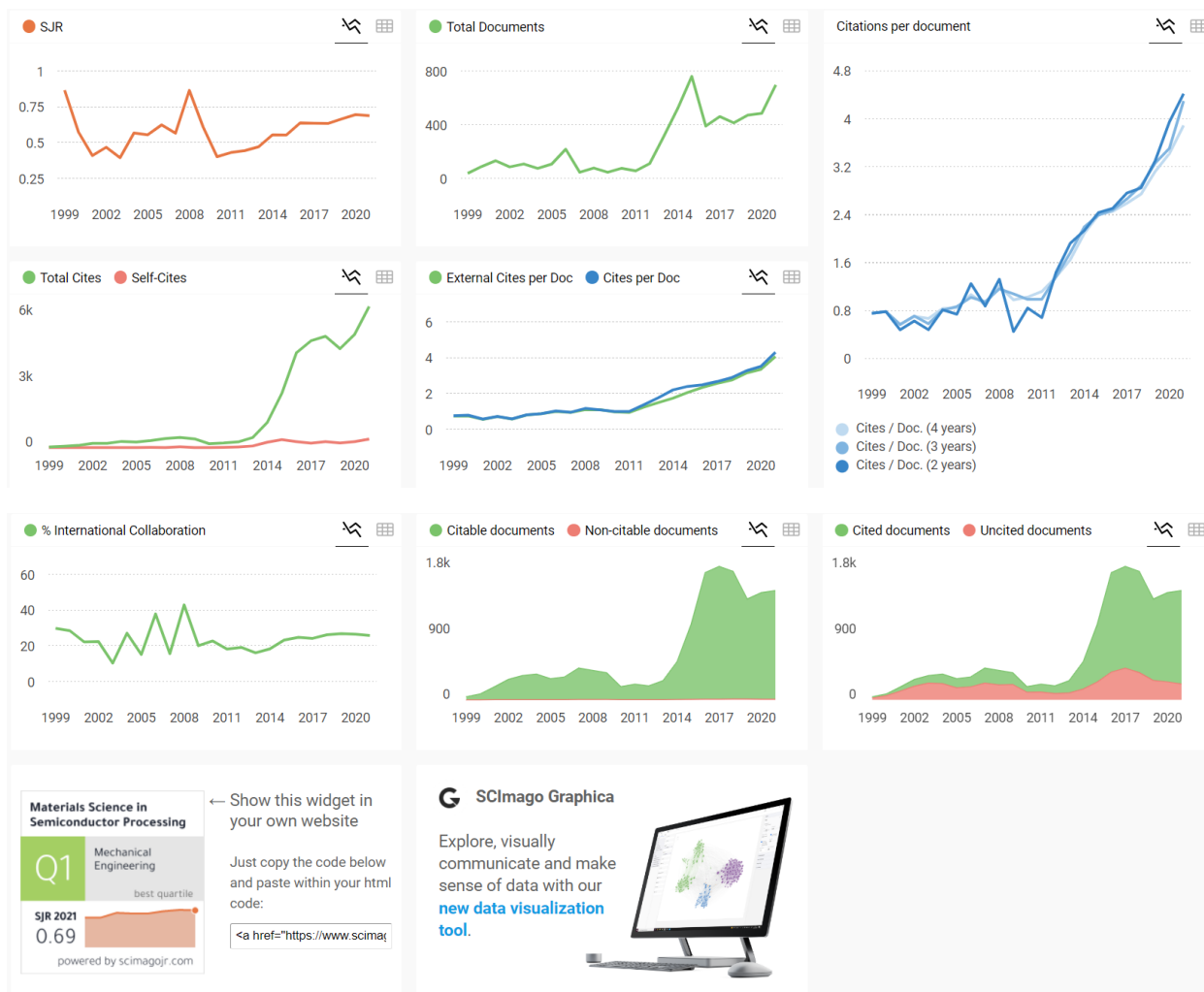
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