

To be corrected

submitted on *Wed 17 May 2017 at 22:18* by *Alex QUANDT*

### **Comments**

The authors examine the properties of bismuth doped yttrium oxide materials, which could be useful for down-conversion of UV light in LEDs and solar cells. They synthesize these materials using a co-precipitation method, which is strongly influenced by the pH value of the solution, which can be controlled by the addition of ammonia. The changes in the structure of the precipitate due to stresses and strains were analysed by XRD methods, and the size of the crystallites were determined using the Scherrer method. This was accompanied by an analysis of the excitation and emission spectra, and the measurement of photoluminescence intensities.

The paper is interesting and worth publishing, but there are some remaining issues:

1. Which diffraction peak was used in Eq. (1)?
2. Reference [7]: Würfel, not Wurfel.
3. In order to be competitive with rare earth ions, the present material should have almost perfect down-conversion efficiencies. Did the authors try to estimate the conversion efficiencies of the present materials, and how do these values compare to the efficiencies of some of the standard combinations of rare-earth ions?
4. The English is not always up to scratch. Please revise.

### **Criteria Evaluation**

Does the article that you are being asked to review match your expertise? (On scale, + for yes or agree): Agree

Are there any potential conflicts of interest if you review this article? (+3 for yes / -3 for no): Strongly Disagree

A1 Scientific merit: Is the work scientifically rigorous and accurate? Is it appropriate for the proceedings?: Agree

A2 Clarity: Are the ideas in the paper communicated clearly and legibly? : Weakly Agree

A3 Context: Is there sufficient discussion of the background for this work and suitable referencing?: Agree

B1 Originality: Is the work relevant and novel?: Weakly Agree

B2 Motivation: Does the problem considered have a sound motivation? All papers should clearly demonstrate the scientific interest of the results: Agree

C1 Title: Is it adequate and appropriate for the content of the article?: Agree

C2 Abstract: Does it contain the essential information of the article? Is it complete?: Agree

C3 Diagrams, figures, tables and captions: Are they essential and clear?: Weakly Agree

C4 Text and mathematics: Are they brief but still clear? If you recommend shortening, please suggest (below at comments) what should be omitted: Weakly Agree

C5 Conclusion: Does the paper contain a carefully written conclusion, summarising what has been learned and why it is interesting and useful?: Agree

C6 References: Are the references in the correct format? Are all references mentioned in the text and cited chronologically?: Agree

To be corrected

submitted on *Mon 24 Apr 2017 at 14:06* by *Japie ENGELBRECHT*

## Comments

The article deals with the preparation and characterization of the phosphor  $\text{Y}_2\text{O}_3:\text{Bi}^{3+}$ . The authors provide an abstract that outlines the reason for the research, as well as the main results obtained. This is followed by a thorough introduction, wherein a solid background is given about the reasons why the research is important, and what is hoped to be achieved. In this article, the impact of the pH of the ammonia that is used in the preparation of the material was investigated. The experimental details are provided with enough detail for someone else to be able to repeat the experiments. Results clearly show the impact of the pH on the luminescence of the synthesized phosphor.

Accept, subject to minor corrections:

1. Page 1, Introduction, line 12: reference is made to two different units, viz. 10,000 cm<sup>-1</sup> and 1000 nm in the same sentence. Chose ONE unit for both.
2. Page 3, 1st line: “similar to sample / the sample .... at pH 6 there / comma between “6” and “there”.
3. Page 6, line 3: Bi ions, are / delete comma.

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