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Reviewer #1 (REMARKS to AUTHOR(s)):

This paper describes interesting new data and interpretations on the impact of ultrasound on the formation and dissociation of FeB pairs in silicon. The results are comprehensive and the conclusions are supported by the evidence. The paper is logically written, and the reference list is comprehensive. The English expression is a little awkward in places, but not to the extent that it negatively affects the readability, in my opinion. I am not sure about the practical application of the work, but it is interesting physics, and provides new scientific understanding of the defect reactions. I think it can be published in it's present form.

Reviewer #2 (REMARKS to AUTHOR(s)):

The authors present an experimental investigation of the influence of ultrasound loading on the dissociation and repair of iron-boron pairs in crystalline silicon samples. The Fe-B pair transformations were followed by measuring the short circuit current of silicon solar cells.
The results are interesting, well presented and well analyzed. The manuscript is clearly written and well organized.
In Fig. 4, the numbers identifying the different curves are missing.
Figure 6 is not so relevant, and could be given as supplementary information.
The reference list is complete. I suggest publication after minor revision.

Reviewer #3 (REMARKS to AUTHOR(s)):

The manuscript entitled „ Features of FeB pair light-induced dissociation and repair in silicon n+-p-p+ structures under ultrasound loading" investigates the impact of ultrasound on the association of the well-known iron-boron-pairs in silicon diodes. An impact is found and the underlying physics is thoroughly discussed. The paper is clearly written and appropriate citations are given. Nevertheless a major revision is necessary since it does not cite a previous paper on

the same topic, which has a different outcome.

1.) Some smaller errors:

Page 1, column 2, line 1: The lattice deformation amplitude should have a unit.

Page 1, column 2, paragraph 3: The origin of the iron in the diodes should be explained. How are the diodes contaminated with iron?

Page 1, column 2, paragraph 5: How was the excess carrier density, which is induced by the LED illumination, estimated? This point should be explained.

Figure 2: Short circuit current has the unit µA not µm.

Page 2, column 2, paragraph 1: The materials doping level is given on page 1 with 10 Ohm cm. This is about 1.4e15cm^-3 and not 1.4e16cm^-3 as stated here.

Equation 7: The unit of the pre-factor is missing.

Page 3, column 1, paragraph 3: The obtained iron concentration is compared to results obtained from diffusion length measurements. There should be a reference to these measurements or more details should be given.

Figure 4: The numbers of the curves given in the caption are not included in the graphs. This must be improved otherwise the figures cannot be understood. Each graph should also be marked by a letter. What is "G" at the x-axis of the inset? This should be explained.

Figure 5: This plot is confusing and must be revised. What is the main statement of this figure? What are the differences between the samples and why do the results change from sample to sample? The axes should have the same scaling. What are the light blue bars in (a)?

2.) Main Problem

The impact of ultrasound on the iron-boron-pair reaction was first reported by Ostapenko and Bell in 1995 [1]. They found that the iron boron pairs dissociate due to an ultrasound treatment. This is in contradiction to the findings, which are reported herein. In the contribution under review it is found that the association of the FeB pairs is enhanced by the ultrasound treatment. This contradiction must absolutely be discussed by the authors otherwise the manuscript cannot be published.

[1] S. S. Ostapenko and R. E. Bell, "Ultrasound stimulated dissociation of Fe-B pairs in silicon," J. Appl. Phys., vol. 77, no. 10, p. 5458, 1995.