

To: physica status solidi (a) Editorial Board
Subject: Article Submit

Dear Editors,

Enclosed with this letter you will find the electronic submission of manuscript entitled “Influence of illumination spectrum on dissociation kinetic of iron-boron pairs in silicon” by Oleg Olikh, Oleksandr Datsenko, and Serhiy Kondratenko.

It is widely recognized, that defects significantly impact semiconductor properties. Therefore it’s crucial to understand the parameters of defects and the mechanisms behind their alteration, which holds significant practical importance. Over several decades, extensive knowledge has been amassed regarding specific defects, with the iron-boron pair in silicon being a well-studied example. Therefore, the discovery of new findings or the resolution of contentious issues is particularly intriguing.

It has been established that the rate of light-induced dissociation of FeB pairs is influenced by integrated illumination intensity, temperature, and the defect composition of the material. Our investigation found that the spectral composition of illumination is an additional important factor affecting dissociation efficiency. Specifically, we demonstrated that increased photon energy leads to higher photo-dissociation efficiency. The results indicate that the recombination-enhanced defect reaction is the more probable mechanism at the second stage of light-induced dissociation, as opposed to iron ion recharge. We are confident that this study, shedding new light on the long-studied FeB pair in silicon, will be of significant interest to your readers.

The corresponding abstract has been accepted for poster presentation at the GADEST 2024 conference (Reference ID 105868).

This is an original paper which has not been simultaneously submitted as a whole or in part anywhere else. No elements of the work have been published in any form. No conflict of interest exists in the submission of this manuscript.

We would very much appreciate if you would consider the manuscript for publication in the *physica status solidi (a)*.

Sincerely yours,
Oleg Olikh and co-authors.
Taras Shevchenko National University of Kyiv
Kyiv 01601, Ukraine
E-mail: olegolikh@knu.ua