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# Bis[1]benzothieno[1,4]thiaborins as a Platform for BODIPY Singlet Oxygen Photosensitizers


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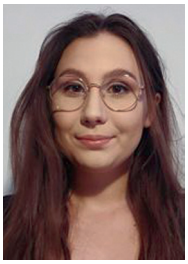
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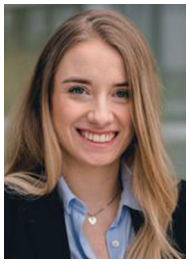
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**Invited for the cover of this issue are Krzysztof Durka and co-workers at Warsaw University of Technology, University of Warsaw, Silesian University of Technology and Heinrich-Heine-Universität. The image depicts the generation of singlet oxygen by the BODIPY photosensitizer. Read the full text of the article at 10.1002/chem.202300680.**

## *In one word, how would you describe your research?*

*Inspiring!* Our study shows that spiro boracyclic-BODIPY molecules promote the formation of the triplet states upon light excitation. The presented strategy is universal, as it opens up new possibilities for the development of efficient photoactive materials for applications in medicine, catalysis and decontamination of pollutants.

## *Who contributed to the idea behind the cover art?*

The idea was coined during our WhatsApp conversations. The picture was created by Paulina. She used different art techniques to create scientific artwork for our paper including her own paintings, experimental X-ray structures and artificial intelligence. Paulina proposed presenting the conversion of triplet oxygen to its singlet state by combining the real crystal structure of thiaborin-BODIPY with light and oxygen represented by bulb and gas flow symbols, respectively. The triplet oxygen enters the red door where it is converted to the singlet state. The open doors also symbolize the new concept for the design of triplet-state photocatalysts by using thiaborin scaffolds as a key structural element determining the photophysical properties of the dye. The pivotal role of the organoboron core is also underlined in the Table of Contents picture of the article, which fits in with the presented open-door symbolism.

### *Does the research open other avenues that you would like to investigate?*

We have directed our current scientific interests towards the application of boracyclic BODIPY singlet-oxygen generators for antimicrobial photodynamic therapy. We also plan to perform further structural modification on the BODIPY ligand site in order to apply these systems to anticancer photodynamic therapy. In addition, we have successfully immobilized BODIPY dyads on polymeric microfibers by using electrospin techniques. The materials obtained were tested for the purification of post-dialysis fluids. We are also working to include the thiaborin scaffold into two-photon absorption molecular probes, which will serve as intercellular hypoxia diagnostic tools. All these new areas of investigation benefit from the universal character of the proposed concept for the design of new types of photosensitizers.