What's new about organic solar cells

Vidmantas Gulbinas Department of Molecular Compound Physics

The past decade has been an interesting one for organic solar cells. After almost a decade of stagnant development, their record performance jumped by more than one and a half times around 2020, and approached 20%. It was caused by the replacement of fullerene derivatives, which until then were considered indispensable electron acceptors, with organic molecules. This made it possible to expand the spectrum of light absorbed and converted into electricity. It also turned out that some electronic processes in such "all organic" solar cells take place somewhat differently than previously believed. However, new problems have emerged that need to be solved in order to achieve the practical use of such elements.