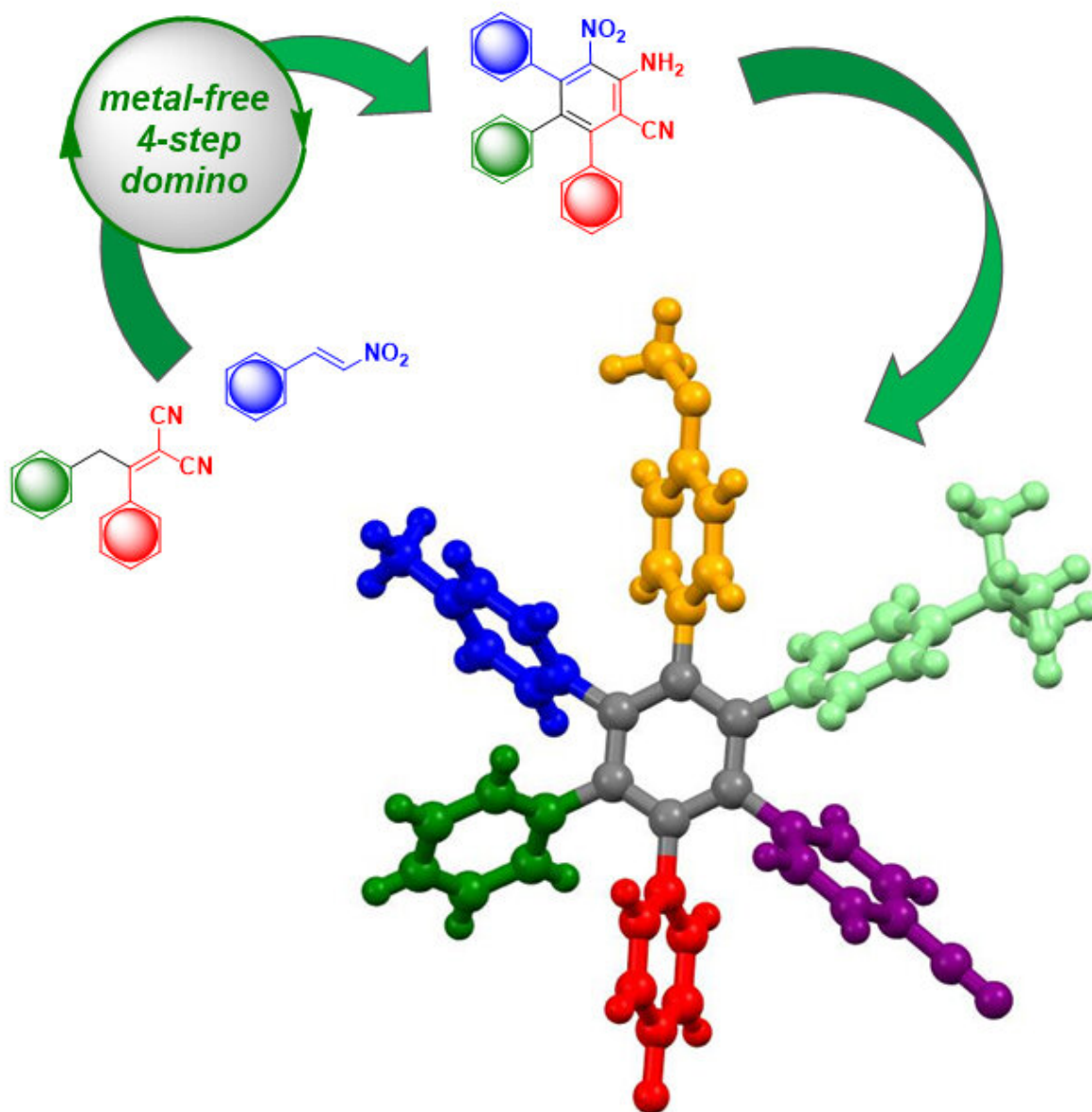


# An innovative method for producing complex molecules

July 6 2021



In a straightforward, four-step domino reaction, an initial compound can now be produced without the aid of – at times toxic – metals, and used to synthesize large quantities of asymmetrical HAB. Credit: FAU/Svetlana Tsogoeva

A team of researchers at the Department of Chemistry and Pharmacy at Friedrich-Alexander University Erlangen-Nürnberg (FAU) has successfully solved the problem of finding a straightforward, cost-effective process for producing hexaarylbenzene molecules with six different aromatic rings. These molecules are important functional materials. The results were published in the journal *Angewandte Chemie*.

Until now, it has been possible to use certain chemical procedures to produce simple, symmetrical hexaarylbenzene (HAB) [molecules](#), in which the hydrogen [atoms](#) of the [benzene](#) are replaced by the same atomic groups. However, only very little HAB was produced in this way.

The team of researchers led by Prof. Dr. Svetlana Tsogeva and Prof. Dr. Norbert Jux, both professors of organic chemistry, has now developed a process which even allows asymmetrical HAB with six different aromatic rings around the benzene core to be produced simply and straightforwardly. In an efficient, four-step domino reaction, the researchers produced an initial compound without the aid of—at times toxic—metals, and used this compound to synthesize large quantities of asymmetrical HAB. Controls are carried out throughout the procedure to monitor which atom groups replace the hydrogen atoms of the benzene.

These currently unresearched HAB may be of use for developing innovative liquid crystal materials or for organic electronics.

**More information:** Benedikt W. Grau et al, Four-step domino

reaction enables fully controlled non-statistical synthesis of hexaarylbenzene with six different aryl groups, *Angewandte Chemie International Edition* (2021). [DOI: 10.1002/anie.202104437](https://doi.org/10.1002/anie.202104437)

Provided by University of Erlangen-Nuremberg

Citation: An innovative method for producing complex molecules (2021, July 6) retrieved 26 April 2024 from <https://phys.org/news/2021-07-method-complex-molecules.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.