



Showcasing research from the International Tomography Center SB RAS (Russia), the Novosibirsk State University (Russia), the University of Helsinki (Finland), the Hungarian Academy of Sciences (Hungary) and the University of Oulu (Finland)

Title: Nuclear spin hyperpolarization with *ansa*-aminoboranes: a metal-free perspective for parahydrogen-induced polarization

This paper reports a series of unimolecular metal-free frustrated Lewis pairs based on an *ansa*-aminoborane (AAB) moiety, allowing observation of nuclear spin hyperpolarization effects upon interaction with parahydrogen. Hyperpolarization was observed for all AABs differing in boryl site substituent (–H, –Ph, –*o*-iPr-Ph, –Mes) in a wide temperature range.

A theoretical analysis revealed the roles of chemical exchange, chemical equilibrium and spin dynamics in terms of the key parameters, providing a foundation for design of metal-free tweezer-like molecules for parahydrogen-induced polarization.

As featured in:



See Vladimir V. Zhivonitko et al.,  
*Phys. Chem. Chem. Phys.*,  
2016, **18**, 27784.