



VI NORTH CAUCASUS ORGANIC
CHEMISTRY SYMPOSIUM

BOOK OF ABSTRACTS



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VI СЕВЕРО-КАВКАЗСКИЙ СИМПОЗИУМ ПО ОРГАНИЧЕСКОЙ ХИМИИ
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The book of abstracts of the VI North Caucasus Organic Chemistry Symposium held from 18 to 22 April 2022 at the Faculty of Chemistry and Pharmacy of the North-Caucasus Federal University. Includes lectures of plenary, key-note and invited speakers, as well as oral reports and poster session. The present publication is aimed at popularization of scientific research activity in the field of organic chemistry and to discuss modern chemical problems on the international level. The digest is intended for scientists, students, postgraduates, and a wide range of readers interested in current chemistry problems.

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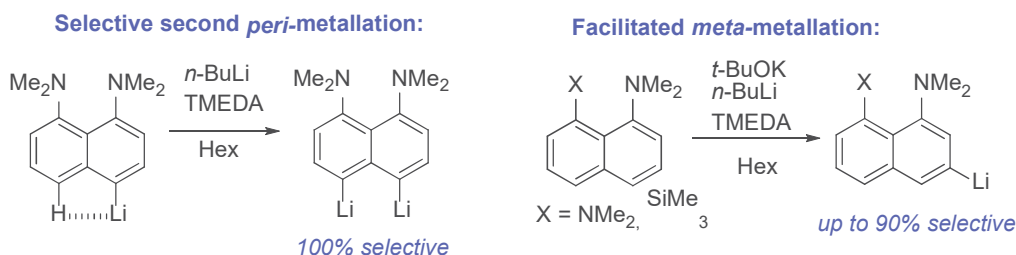
18-22 APRIL 2022

STERIC EFFECTS IN ORGANOLITHIUMS: SELECTIVE METALATION AND SYNTHESIS OF NITROGEN HETEROCYCLES

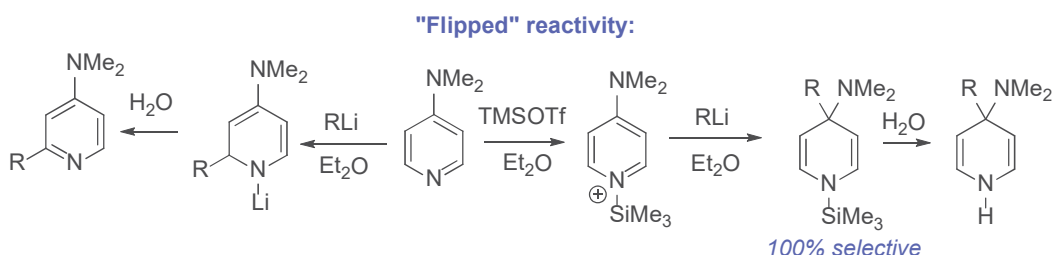
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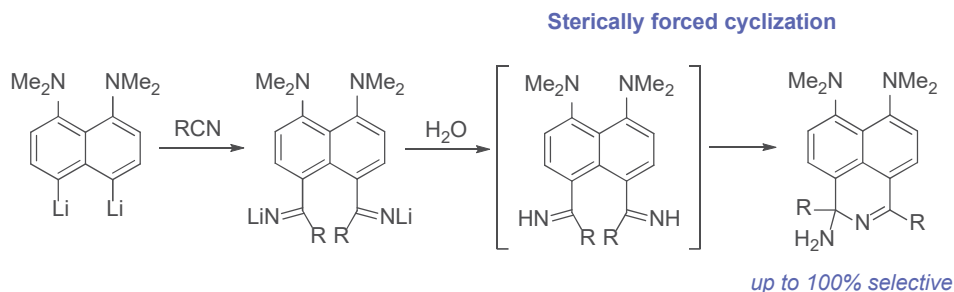
In our work we present the application of steric effects for the non-trivial functionalization of aromatic and heteroaromatic amines with organolithiums. We have found that non-covalent $\text{Li}\cdots\text{H}$ interaction facilitates second metalation of 4-lithio-1,8-bis(dimethylamino)naphthalene opening a simple way to the hard-to-reach *peri*-disubstituted naphthalene proton sponges with up to 100% selectivity and up to 90% yield. It was demonstrated that presence of bulky substituent in close proximity to NMe_2 and OMe groups in dimethylaniline, anisole and 1-dimethylaminonaphthalene stabilises conformation with an unshared electron pairs turned towards bulky substituent. This forced conformation suppresses DOM-effect, thus facilitating *meta*-metalation.



We have demonstrated that *N*-silylation “flips” the reactivity of 4-dimethylaminopyridine towards organolithiums leading to the formation of 4,4-disubstituted dihydropyridines: bulky SiMe_3 group sterically hinders the addition to the positions 2(6), facilitating nucleophilic attack to the position 4.



We have found that the interaction between *peri*-dilithionaphthalenes and nitriles leads to the formation of benzo[*de*]isoquinolines. Reaction starts with the formation of *peri*-diimides, which upon hydrolysis undergo intramolecular nucleophilic cyclisation facilitated by the proximity of imino groups.



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