

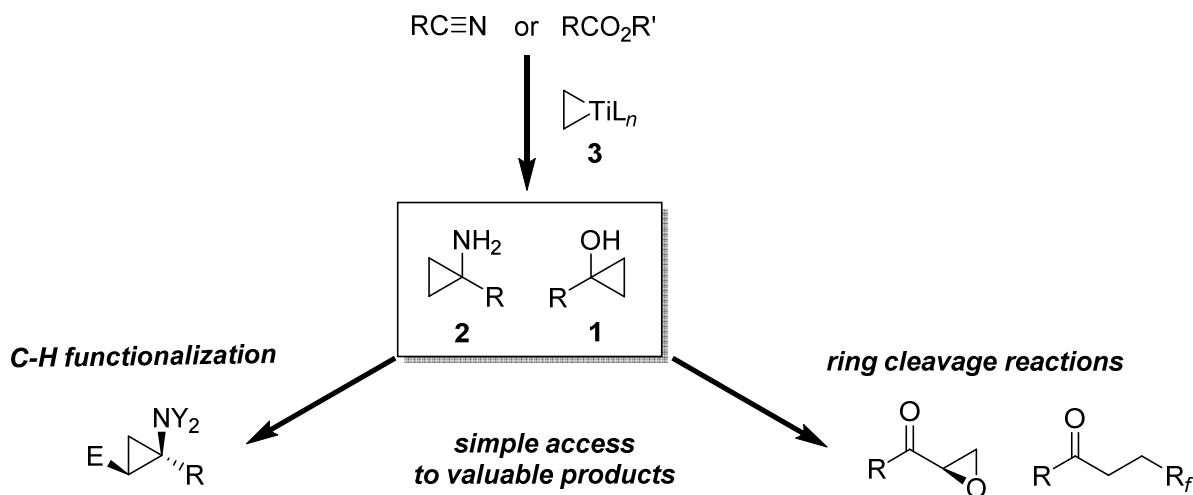
SMALL RINGS IN ACTION: ORGANIC SYNTHESIS WITH ACTIVATED CYCLOPROPANES

Dzmitry Kananovich

Akadeemia tee 15, 12618 Tallinn
Tallinn University of Technology
Estonia

dzmitry.kananovich@ttu.ee

Cyclopropanes are broadly applied in organic synthesis as versatile building blocks. Cyclopropanols (**1**) and cyclopropylamines (**2**) can be easily prepared from carboxylic esters and nitriles respectively, via cyclopropanation with titanacyclopropane reagents **3** (family of Kulinkovich reactions). Activated with the electron-donating substituents, cyclopropane derivatives **1** and **2** undergo facile ring opening in reactions with electrophilic or radical species, thus providing shortcut routes towards highly valuable carbonyl compounds. On the other hand, increased *s*-character of the C-H bonds of the cyclopropane ring allows performing its functionalization with the retention of the strained cycle.



In this talk, our recent developments in C-H functionalization of cyclopropylamines (**2**) via directed metalation strategy will be presented, along with several new synthetic applications of cyclopropanols (**1**), designed in our group. Latest achievements in enantioselective generation of alkoxytitanacyclopropane reagents **3** and their use in asymmetric synthesis will also be discussed.