

Two still existing problems in catalytic olefin metathesis and how to solve them

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Ruthenium-catalyzed olefin metathesis reactions represent an attractive and powerful transformation for the formation of new carbon-carbon double bonds [1]. This area is now quite familiar to most chemists from academia and industry as numerous air and moisture stable ruthenium [2] catalysts are available that enable a plethora of olefin metathesis reactions.

However, formation of substituted and crowded double bonds, decreasing the loading and then the trace amount of a catalyst in products, selectivity issues during self-CM and ethenolysis, etc. still remain a challenge, making industrial applications of this methodology difficult. These limitations can be solved by designing new, more selective and stable catalysts and systems that can be easier removed or recycled. New catalysts could even make a metathesis based macrocyclisation at high concentration possible for the first time [3].

During the lecture a number of representative examples will be presented.



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1. *Olefin Metathesis: Theory and Practice*, Grela, K. (Ed.), John Wiley & Sons, 2014
2. Grela, K. *Chem. Eur. J.* **2019**, 25, 1606.
3. Sytniczuk, A.; Dąbrowski, M.; Banach, Ł.; Urban, M.; Czarnocka-Śniadała, S.; Milewski, M.; Kajetanowicz, A.; Grela, K. *J. Am. Chem. Soc.* **2018**, 140, 8895.