

# Laboratory of Organometallic Synthesis



## HEAD:

Prof. Karol Grela\*, PhD DSc Eng

## GROUP MEMBERS:

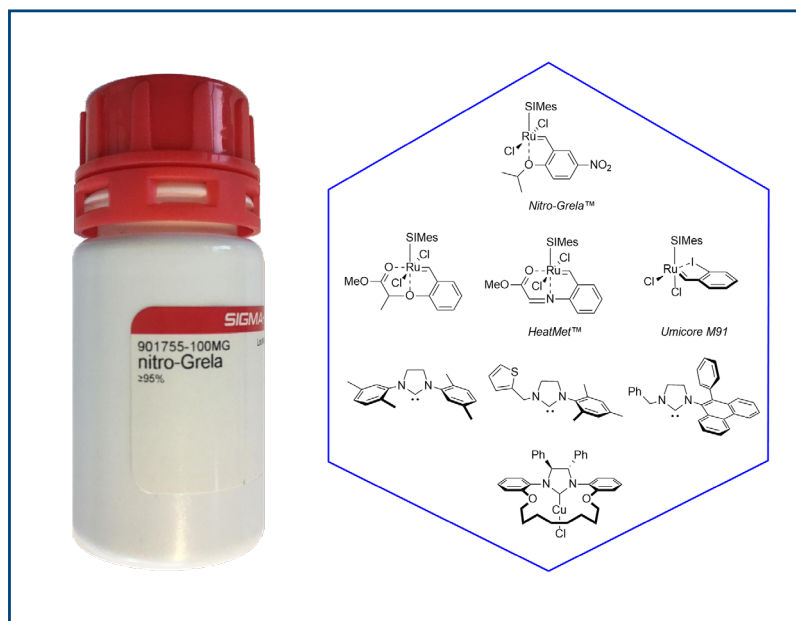
Anna Kajetanowicz, PhD Eng;  
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Magdalena Walczak, MSc Eng;  
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Anna Marczyk, Katarzyna Gajda,  
Marta Czarnota-Bojarska, Paweł Krzesiński,  
Tomasz Nienałtowski, Magdalena Drzazga,  
Kamil Kosik

## RESEARCH PROFILE:

Research carried out by this group concerns application of different catalytic reactions in organic synthesis, especially in synthesis of natural products, polymers and pharmaceuticals. Currently, work of the group is focused on organic synthesis by means of transition metals, with emphasis on metathesis of alkenes and alkynes, and on chemistry of renewable resources. Such research must be conducted under the atmosphere of an inert gas, by use of the Schlenk technique, that allows work under anhydrous and anaerobic conditions.  
<http://www.karolgrela.eu/>

## CURRENT RESEARCH ACTIVITIES:

The main research areas of the group are designing new, user-friendly catalysts that enable easier purification of reaction products, analyzing the possibilities of the reuse of catalysts, and expanding the application range of metathesis in organic synthesis. The research laboratories of the group are fully equipped with modern instruments, including dry-boxes, GC, GC/MS and HPLC chromatographs, and NMR 400 MHz spectrometer with autosampler.



## SELECTED PUBLICATIONS:

1. P. Małcki, K. Gajda, R. Gajda, K. Woźniak, B. Trzaskowski, A. Kajetanowicz, K. Grela, Specialized Ruthenium Olefin Metathesis Catalysts Bearing Bulky Unsymmetrical NHC Ligands: Computations, Synthesis, and Application, *ACS Catal.* 9 (2019) 587–598.
2. A. Sytniczuk, M. Dąbrowski, Ł. Banach, M. Urban, S. Czarnocka-Śniadała, M. Milewski, A. Kajetanowicz, K. Grela, At Long Last: Olefin Metathesis Macrocyclization at High Concentration, *J. Am. Chem. Soc.* 140 (2018) 8895-8901.
3. G. Szczepaniak, A. Ruszczynska, K. Kosiński, E. Bulska, K. Grela, Highly efficient and time economical purification of olefin metathesis products from metal residues using an isocyanide scavenger, *Green Chem.* 20 (2018) 1280-1289.
4. A. Sytniczuk, A. Leszczyńska, A. Kajetanowicz, K. Grela, Preparation of Musk-Smelling Macrocyclic Lactones from Biomass: Looking for the Optimal Substrate Combination, *ChemSusChem.* 18 (2018) 3157-3166.
5. M. Michalska, K. Grudzień, P. Małcki, K. Grela, Gold(I)-Catalyzed Formation of Naphthalene/Acenaphthene Heterocyclic Acetals, *Org. Lett.* 20 (2018) 954–957.
6. V. Cesar, Y. Zhang, W. Kośnik, A. Zieliński, A.A. Rajkiewicz, M. Ruamps, S. Bastin, N. Lukan, G. Lavigne, K. Grela, Ruthenium Catalysts Supported by Amino-Substituted N-Heterocyclic Carbene Ligands for Olefin Metathesis of Challenging Substrates, *Chem. Eur. J.* 23 (2017) 1950-1955.
7. A. Jana, K. Grela, Mild Functionalization of Tetraoxane Derivatives via Olefin Metathesis: Compatibility of Ruthenium Alkylidene Catalysts with Peroxides, *Org. Lett.* 19 (2017) 520-523.
8. S.J. Czarnocki, I. Czełuśniak, T.K. Olszewski, M. Malińska, K. Woźniak, K. Grela, Rational and Then Serendipitous Formation of Aza Analogues of Hoveyda-Type Catalysts Containing a Chelating Ester Group Leading to a Polymerization Catalyst Family, *ACS Catal.* 7 (2017) 4115-4121.
9. A. Jana, K. Woźniak, D. Trzybiński, K. Grela, Well-Defined Chiral Copper NHC Complex in Asymmetric Conjugated  $\beta$ -Borylation and One-Pot Metathesis-Asymmetric  $\beta$ -Borylation, *Chem. Eur. J.* 24 (2017) 891-897.
10. A. Jana, K. Grela, Forged and Fashioned for Faithfulness—Ruthenium Olefin Metathesis Catalysts Bearing Ammonium Tags, *Chem. Commun.* 54 (2017) 122-139.