

PhD Studentship - Organic and Organometallic Chemistry

Project: Novel Transition Metal-Catalyzed Methods for Organic Synthesis

Applications are invited for a **Ph.D. studentship** available to start in **Fall 2021** at the Department of Chemistry at Rutgers University, Newark, USA working on *Synthetic Organic Chemistry, Ligand Design & Transition Metal Catalysis* under the supervision of **Prof. Michal Szostak**.

The student will receive extensive training in organic synthesis and organometallic chemistry in new laboratories housed in the Olson Hall. The student will gain expertise in small and large-scale synthesis, inert gas techniques (Schlenk, glove box), design, optimization and validation of reaction conditions, analysis techniques (NMR, GC, GC-MS, LC-MS, HPLC), mechanistic, kinetic studies, X-ray crystallography.

Students in the Szostak group regularly publish research papers in top organic chemistry journals (*Angew. Chem., J. Am. Chem. Soc., ACS Catal., Nat. Commun.*). On average, each student publishes >2 papers/year (check <http://szostakgroup.com/publications>).

Send your **CV**, together with a **covering letter** and contact details of **three** academic referees to Prof. Szostak at michal.szostak@rutgers.edu **TOEFL scores are required for application**. Candidates with high **TOEL (initial score around 90)** will receive preference. **IELTS scores (6.0 or higher)** can be used instead of TOEFL. Applications from candidates **with Masters degree in organic synthesis and organometallic chemistry** are preferred. **Please, send your application as soon as possible for full consideration**. Candidates who have already published research papers will receive preference.

The studentship covers fees and an annual stipend. All projects are in the hot-topic areas (N–C activation, C–O activation, C–H activation, ligand design, cooperative catalysis, NHC–transition metal catalysis). For some background information on recent work by Prof. Szostak see:

- J. Am. Chem. Soc.* **2015**, 137, 14473 (*the first graphene-catalyzed alkylation*)
- Angew. Chem. Int. Ed.* **2015**, 54, 14518. (*the first Heck reaction of amides*).
- Angew. Chem. Int. Ed.*, **2016** 55, 6959. (*Biaryl coupling, Highlighted in Synfacts, 2016, 12, 731*).
- ACS Catal.* **2016**, 6, 4755. (*Ru-catalysis, one of the most accessed papers in ACS Catal. in June 2016*)
- ACS Catal.* **2016**, 6, 7335. (*Cooperative catalysis, Highlighted in Synfacts, 2017, 13, 84*)
- Chem. Sci.* **2017**, 8, 6525. (*the first RT amide and ester activation, Highlighted in Synfacts, 2017, 13, 1189*)
- Angew. Chem. Int. Ed.* **2017**, 56, 12718. (*the first phosphorylation of amides, Hot Paper*).
- J. Am. Chem. Soc.* **2018**, 140, 727 (*the first fully twisted acyclic twisted amides*)
- Acc. Chem. Res.* **2018**, 51, 2589. (*personal account of N-C and O-C activation*).
- Angew. Chem. Int. Ed.* **2018**, 57, 16721. (*decarbonylative borylation of carboxylic acids*).
- Chem. Sci.* **2019**, 10, 9865. (*the first Pd-catalyzed biaryl Suzuki coupling of amides*).
- J. Am. Chem. Soc.* **2019**, 141, 11161. (*N-C and O-C activation in unactivated amides/esters*).
- Chem. Rev.* **2020**, 120, 1981. (*the first account of NHC ligands in C-H activation*).
- Trends Chem.* **2020**, 2, 914. (*review of N-C amide bond activation*).

The Chemistry Department at The State University of New Jersey, features state-of-the-art facilities and equipment (<http://chemistry.rutgers.edu/>), and is located in a vibrant Newark campus at the heart of metropolitan New York area (15 min to Manhattan and Newark airport). The Szostak labs are located in a **brand-new LSC-II building** (2018, <https://www.newark.rutgers.edu/tags/lsc-ii>).

Prof. Michal Szostak <http://chemistry.rutgers.edu/szostak/> Webpage: <http://szostakgroup.com/>