

From Conventional to Feedback-Regulated Catalysis



Syuzanna R. Harutyunyan

Stratingh Institute, University of Groningen

sr-harutyunyan.com

16 May **2024**
Thursday

15:30

Moonstone Room F

Our research group is dedicated to pioneering new concepts in catalysis. The first part of the presentation will highlight our latest advancements in the activation of H–P bonds, which have facilitated the catalytic creation of chiral ligands and the synthesis of enantiomerically pure *Z*-alkenes featuring a tertiary allylic stereocenter. Subsequently, the focus will shift towards exploring beyond traditional catalytic strategies. We have been working on creating catalytic systems that work within complex networks of reactions and we have introduced a new concept of oscillating catalysis. A particular emphasis will be placed on the development and application of a small organic molecule that functions as a catalytic oscillator.

1. R. P. Jumde, F. Lanza, M. J. Veenstra, S. R. Harutyunyan, *Science* **2016**, 352, 433–437.
2. J. M. Pérez, R. Postolache, M. Castiñeira Reis, E. G. Sinnema, D. Vargová, F. de Vries, E. Otten, L. Ge, S. R. Harutyunyan, *J. Am. Chem. Soc.* **2021**, 143, 48, 20071–20076.
3. L. Ge, E. G. Sinnema, J. M. Pérez, R. Postolache, M. Castiñeira Reis, S. R. Harutyunyan, *Sci. Adv.*, **2023**, 9, eadf874.
4. M. J. Veenstra, S. R. Harutyunyan, *Chem. Commun.* **2022**, 58, 13895–13898.
5. M. ter Harmsel, O. Maguire, S. Runikhina, A. Wong, W. Huck, S. R. Harutyunyan, *Nature* **2023**, 621, 87–93.

Syuzanna is originally from Armenia, where she received her Master's degree in Pharmacology. She did her PhD in Moscow with Prof. Belokon and was a postdoctoral fellow in Groningen with Prof. Feringa. Following her stay at Janssen Pharmaceutica, Syuzanna returned to the University of Groningen in 2010 to start her independent career and since 2018 she is a Full Professor and Chair of Homogeneous Catalysis. Her research is in the field of chemical catalysis, reaction mechanisms and out-of-equilibrium systems. Her scientific prowess has been recognized by awards such as the Solvias Ligand Contest Award, the KNCV Gold Medal from Dutch Royal Society and the Royal Chemical Society Homogeneous Catalysis Award. She is also holding ERC Consolidator and NWO Vici grants. Syuzanna has served as an associate editor of *ACS Catalysis* (2020–2023).

