In deep memory of Professor Rolf Huisgen, a great chemist, who passed away on March 26, 2020

Yong Tang* and Jinbo Hu*

Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, 345 Ling-Ling Road, Shanghai 200032, China

Rolf Huisgen

(June 13, 1920 – March 26, 2020)

Professor Emeritus
Department of Chemistry
Ludwig-Maximilians University of Munich
Germany

Selected Awards

- Liebig Memorial Medal of the German Chemical Society (1961);
- Otto Hahn Prize in Chemistry and Physics (the highest prize in science in Germany; 1979);
- Citation Laureate of “Nobel Class” 2019 in Chemistry (2019).

Scientific Contributions

The contributions of Professor Rolf Huisgen to organic chemistry are numerous. His research interests mainly focused on the organic reaction mechanism, 1,3-dipolar cycloadditions, and orbital control of reactivity, among others. In the early days, it was the chemistry of diazo compounds that attracted his interest. His group was able to increase the synthetic possibilities of this chemistry and to broaden the mechanistic knowledge about the reactions of diazo- and diazonium compounds. The reactions of N-nitrosoacrylamides were studied in depth leading to formulation of alkanediazonium ion pairs and the subsequent formation of carbocations in various product forming steps. Medium sized rings and benzene chemistry were his main activities in 1950s. The discovery of the existence of pentazoles, a long sought-after class of compounds, is certainly one of his great scientific achievements. His most widely recognized contribution to chemistry is the development of general concepts of 1,3-dipoles and 1,3-dipolar cycloadditions (nowadays known as “Huisgen reactions” or “Huisgen chemistry”). Although scattered examples of reactions of alkenes with molecules (later called 1,3-dipoles) could be found in the literature, it was Huisgen’s great achievement and merit to have recognized the general principle and to have exploited the chemistry of 1,3-dipolar cycloadditions. In early 1960s, he discovered new 1,3-dipoles that followed from the formulation of the underlying principle. During the following 40 years, his group and many followers have developed 1,3-dipolar cycloadditions as the most powerful tool to synthesize five-membered heterocyclic compounds. Professor Huisgen published more than 600 scientific papers in various areas of mechanistic, physical-organic, and heterocyclic chemistry and established a school of distinguished academic scholars in Germany and around the world.

References


*E-mail: tangy@mail.sioc.ac.cn; jinbohu@sioc.ac.cn For submission: https://mc.manuscriptcentral.com/cjoc
For articles: https://onlinelibrary.wiley.com/journal/16147065