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SPECIAL ISSUE: In Honor of Professor Lixin Dai on the Occasion of His 100th Birthday

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Preface: special issue in honor of Professor Lixin Dai on the occasion of his 100th birthday

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Prof. Lixin Dai, a luminary in the field of chemistry, was born in Beijing on November 13, 1924. His remarkable journey through the world of science began at Beijing Yuying Middle School in 1936 and continued as he pursued his secondary education in Shanghai. In 1942, he embarked on his academic path by enrolling in the Department of Chemistry at the University of Shanghai. In the next year, he transferred to Zhejiang University in Guizhou Province. After completing his undergraduate studies at Zhejiang University in 1947, he commenced his career as a teacher at the Chinese Professional School in Shanghai. In 1948, he worked at Shanghai Steel Company as an engineer. In 1953, Prof. Dai joined the Shanghai Institute of Organic Chemistry (SIOC), Chinese Academy of Sciences as a research associate. His journey within academia reached notable milestones when he was promoted to the position of associate professor in 1960 and later to a full professorship in 1986. In recognition of his outstanding contribution, he was elected as an Academician of the Chinese Academy of Sciences in 1993.

Throughout his distinguished career, Prof. Dai's research has been both diverse and impactful. In his early years, he delved into the chemistry of tetracycline antibiotics, hydroboration reactions, and carborane chemistry. It was in the 1980s that his research shifted to organic synthetic methodology, particularly focusing on asymmetric synthesis. Prof. Dai made pioneering discoveries regarding the pivotal role of metal coordination in achieving high regioselectivity and stereoselectivity in reaction. He developed a range of highly selective reactions mediated by metal complexes. Moreover, he devised innovative synthetic methods for functionalized epoxides and aziridines, with far-reaching applications in pharmaceuticals, pesticides, and fine chemicals. His contributions extended to the design and synthesis of planar chiral ferrocenyl ligands and the development of Pd-catalyzed asymmetric allylic substitution reactions.

Prof. Dai's influence on the field of chemistry extended beyond the laboratory. In 1997, he co-presided over the National Natural Science Foundation of China Major Research Project, "Chemical and Biological Research on Chiral Drugs", alongside Prof. Liang Huang of the Institute of Materia Medica, Chinese Academy of Medical Sciences. Additionally, Prof. Dai authored over two hundred peer-reviewed papers and served as a co-editor for two books, namely *Chiral Ferrocenes in Asymmetric Catalysis: Synthesis and Applications* (Wiley-VCH, 2010) and *Organic Chemistry-Breakthroughs and Perspectives* (Wiley-VCH, 2012). As a co-chairman, Prof. Dai organized the 19th IUPAC International Conference on Organometallic Chemistry in 2000 and the 7th IUPAC International Conference on

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Heteroatom Chemistry in 2004. He also held advisory board memberships and served as vice editor-in-chief for several esteemed journals.

Prof. Dai's remarkable contributions to chemistry earned him numerous awards, including the Ho Leung Ho Lee Foundation Prize, the National Natural Science Award (second class) twice, the Lifetime Achievement Award of the Chinese Chemical Society, and the Lifetime Achievement Award of Huang Yaozeng Organometallic Chemistry. He served as an Honorary President of the Shanghai Society of Chemistry and Chemical Industry. Beyond his scientific achievements, Prof. Dai is celebrated for his unwavering support and mentorship for young chemists, leaving an indelible mark on future generations.

As we celebrate Prof. Lixin Dai's exceptional scientific journey, it is our privilege to present this special issue, featuring 25 high-quality papers in chemistry. We are delighted that this special issue, dedicated to Prof. Dai, coincides with his 100th birthday, a milestone that marks not only the passage of time but also the profound influence of a visionary scientist. Finally, we would like to express our sincere thanks to the authors, referees, and editors whose contributions and dedication have made the publication of this special issue possible.