

## **ANNIVERSARIES AND DATES**



**NIKOLAI SERAFIMOVICH ZEFIROV**  
(on his 75<sup>th</sup> jubilee)

Outstanding scientist in the fields of organic, mathematical, and medicinal chemistry, Nikolai Serafimovich Zefirov was born on 13 September 1935 in Yroslavl. In 1958 he graduated from the Faculty of Chemistry of M.V. Lomonosov Moscow State University with a "Red Diploma". He became Doctor of Chemical Science (1966), Professor (1973) and head of Chair of Organic Chemistry, Faculty of Chemistry of the Moscow State University (from 1993 to the present), corresponding member of the Russian Academy of Sciences (1981), and Academician of the Russian Academy of Sciences (1987). N. S. Zefirov – Academician of the International Academy of Mathematical Chemistry, Academician of the International Academy of Informatization, Academician of the Russian Academy of Natural Sciences, member of the International Academy on the Uses of Iodine, honored Professor of the M. V. Lomonosov Moscow State University, honorary Professor of a number of leading universities of Europe and the USA, honorary Academician of the Academy of Sciences of the Republic of Bashkortostan. N. S. Zefirov has been awarded state orders and medals, he was conferred with the State Prize of the USSR, Prize of the Government of the Russian Federation in Science and Technology (2002), the Butlerov and Lomonosov prizes, and others. For many years N. S. Zefirov was the director and is currently the scientific leader of the Institute of Physiologically Active Compounds of the Russian Academy of Sciences.

Academician N. S. Zefirov, an acknowledged leader in organic and mathematical chemistry, is one of the most cited chemists. His contribution in the development of organic synthesis is difficult to overestimate: the discovery of a series of new electrophilic addition reactions, new classes of organic compounds

(triangulanes, organic perchlorates, heteroadamantanes, etc.), new unique reagents (hypervalent compounds of iodine, selenium, and tellurium, nitrosulfates, etc.), and the discovery of new phenomena of the nucleophilicity of nucleofugal anions. N. S. Zefirov founded the Russian school of mathematical chemistry and computation of molecular design. He developed methods of mathematical chemistry in applications to problems of medicinal chemistry which allowed the development of molecular modeling of receptors of humans and the planning of the synthesis of innovative medicinals of a new generation. In recent years he has developed the synthesis of new classes of heterocycles, strained polycyclopropane structures, the synthesis of essentially new reagents, for example polynitromethanes for the synthesis of nitro-substituted heterocycles, discovered universal catalysts for a series of processes, new rearrangements, developed the concept of molecular similarity for the prognosis of properties of chemical compounds and for molecular modelling of receptors of the central nervous system of man, for example modelling the open and closed forms of the GABA<sub>A</sub> receptor and the mechanism of its activation, the creation of mathematical apparatus to survey structures with previously targeted properties, carried out the synthesis of compounds possessing antitumor activity, developed a method for the synthesis of phosphorus-containing oligopeptides, synthesis of polyspirocyclic amino acids of the cyclopropane series, pseudo- $\gamma$ -glutamylpeptides, studied the immediate and delayed neurotoxicity in a series phosphorylated oximes, created allosteric modulators of the AMRA-receptor, pharmacologically active 3,7-diazabicyclo[3.3.1]nonanes, hydrogenated pyrido(4,3-*b*)indoles, improved cognitive functions and memory, developed new antineoplastics with proapoptotic properties, etc.

N. S. Zefirov is the initiator of the study of medicinal chemistry in Russia and created the new specialty of "Medicinal Chemistry" in the Faculty of Chemistry of Moscow State University .

In the chemical schools of Academic N. S. Zefirov in the Moscow State University and in Institute of Physiologically Active Compounds of the Russian Academy of Science more than one hundred Candidates and more the 20 Doctoral Dissertations have been submitted.

N. S. Zefirov has published more than 1600 scientific papers and has obtained more than 100 author's certificates and patents.

In parallel with his scientific and pedagogical activities, N. S. Zefirov was active in science organizing work. For many years he chaired scientific and dissertation committees, commissions and sections of the Russian Academy of Sciences, the D. I. Mendeleev Russian Chemical Society, departments of ministries, etc. An international sign of the respect of N. S. Zefirov is shown in that he is member of the editorial boards of the most prestigious journals: *Tetrahedron Asymmetry*, *Chemical Information and Comput. Sci.*, *Sulfur Reports*, *Sulfur Letters*, *Current Topics in Medical Chemistry*, *Khimiya Geterotsiklicheskikh Soedinenii (Chemistry of Heterocyclic Compounds)*, etc.

Nikolai Serafimovich is an inventive, learned, friendly and sympathetic essential scientist who enjoys deep esteem, love and authority

In his 75<sup>th</sup> year Nikolai Serafimovich Zefirov continues to be active, filled with creative work, and is a model and example for scientists, co-workers, and colleagues.

For many years Nikolai Serafimovich was a member of the editorial board of our journal, presently a member of the advisory board, and he and his co-workers are regularly among our authors.

We heartily congratulate Nikolai Serafimovich on jubilee and wish him new creative successes and achievements, new ideas and their implementation, successful completion of intentions, selfless co-workers and disciples, prolonged strong health, happy years of life and we hope that he will continue as our co-worker.

**The Editorial Board**

**A Listing of the Main Publications of Academician of the Russian Academy of Sciences N. S. Zefirov for the Period 2006-2010.**

1. V. I. Chupakhin, V. A. Palyulin, and N. S. Zefirov, Modeling the open and closed forms of GABA<sub>A</sub> receptor: Analysis of ligand-receptor interactions for the GABA-binding site, *Dokl. Biochem. Biophys.*, **408**, 169-174 (2006).
2. E. B. Averina, R. R. Karimov, K. N. Sedenkova, Yu. K. Grishin, T. S. Kuznetsova, and N. S. Zefirov, Carbenoid rearrangement of *gem*-dihalospiropentanes, *Tetrahedron*, **62**, 8814-8821 (2006).
3. E. V. Averina, N. N. Yashin, Yu. K. Grishin, T. S. Kuznetsova, and N. S. Zefirov, Synthesis of (±)-(2-methylenecyclopropyl)glycine and (±)-4-[amino(carboxymethyl)]spiro[2.2]pentane-1-carboxylic acid, *Synthesis*, 880-884 (2006).
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9. E. V. Radchenko, V. A. Palyulin, and N. S. Zefirov, Local molecular characteristics in quantitative analysis of "structure-activity" relationships, *Russ. Khim. Zh.*, **100** (2), 76-85 (2006).
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12. M. I. Lavrov, V. A. Palyulin, and N. S. Zefirov, Design and synthesis of allosteric modulators of AMPA receptors, in: *Proc. of XIII Russian National Congress "Man & Drug", Moscow, Russia, April 3-7* [in Russian], 24, (2006).
13. O. A. Ivanova, E. M. Budynina, E. V. Averina, T. S. Kuznetsova, and N. S. Zefirov, Application of a thermal β-elimination reaction to N-alkoxy-3,3-dinitroisoxazolidines: Synthesis of 3-nitroisoxazolines, *Synthesis*, 706-710 (2006).
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