

Victor Yu. Gankin, Ph. D., Dr. of Science

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| SUMMARY: | Specialist in Organic and Physical Chemistry and Industrial Technology |
| MAJOR ACHIEVEMENTS AND PUBLICATIONS | |
| Monographs | Technology of Oxosynthesis. Khimia, 1981, USSR (in Russian); The New Theory of Chemical Bonding and Chemical Kinetics. "Asta", 1991, USSR (in English); How Chemical Bonds Form and Chemical Reaction Proceed. "ITC", 1998, USA (in English); Twenty First Century General Chemistry, "ITC", 2007, USA (in English); General Chemistry XXI Century, Khimia, 2011, Saint-Petersburg (in Russian); |
| Scientific Papers | 152 papers in Soviet and international journals. |
| Patents | 103 patents in the USSR. 26 patents in the USA, UK, France and other countries. |
| Scientific Conferences Presentations | 120 scientific presentations including 25 US ACS presentations. |
| Awards | Government Medal Best Inventor of USSR Government Major Silver Medal for Achievements in Russian Industry 1 st Mendeleev's Society Award Gubkin Achievement Award 1 st Komsomol Award for Scientific Achievement Major Lenin Award nominee. Other Government and Society awards and nominations available upon request. |
| To date, the recognized total economical effect of implemented inventions is over \$250 Million US dollars | |

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| <p>THEORETICAL RESEARCH</p> | <p>Investigation of the mechanisms of hydroformylation reaction and formation and decomposition of cobalt carbonyls.</p> <p>Discovery and describing of the new type of the chain reactions of the complex compounds ("conens" chain reactions).</p> <p>Development of the general novel approach to the theory of chemical bonding, kinetics and catalysis.</p> <p>The original Theory of Electroconductivity, the Theory of Metallic Bonding, the Theory of superconductivity have been developed.</p> <p>The explanation of the physical nature of the Periodic law, Lewis rules, rules for resonance, and valence has been proposed.</p> <p>The new approach of science development has been proposed.</p> <p>The framework for the development of the unified theory has been created.</p> <p>The unification of explanations of the physical nature of gravity, inertia, electrostatics, electrodynamics and strong intranuclear interactions has been developed.</p> |
| <p>1988-1991</p> | <p>Discovery, investigation and full development of the isoprene and dimethyl vinyl carbinol production via methyl butandiol with decreasing of the manufacturing costs of the both products by 24%.</p> <p>Total production 10,000 ton/year (pilot scale). Economical effect: 1,000,000 doll USA/year. Patents are closed for public by the USSR government.</p> |
| <p>1984-1988</p> | <p>Discovery, investigation and testing on a pilot scale of the novel process of methylethyl ketone production from isobutiric aldehyde. Process allows to obtain 2-ethylhexanol and methylethyl ketone from propylene by oxosynthesis without byproducts.</p> <p>Patents are closed for public by the USSR government.</p> |
| <p>1980-1984</p> | <p>Discovery and investigation of the novel process of high (>C₁₅) normal dicarbonic acids production from unsaturated carbon acids. Patent are closed for public by the USSR government. Publications are available upon request.</p> |

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| 1978-1980 | Discovery and investigation of the process of the styrol production from toluene allowing to save the methyl group in toluene. Selected patents: NN 4,192,961(USA); 1,538,670(UK). |
| 1973-1978 | Discovery, investigation and full development of the isoprene production from formaldehyde and isobutylene via dimethyldioxane with full catalyst recycle. Total production volume: 300,000 ton/year (3 plants). Economical effect 15,000,000 USA doll./year and solution of the important environmental problem. Selected patents: NN 2,490,642(France); 2,078,712B(UK); 79,892(Romania). |
| 1971-1974 | Discovery, investigation and testing on a pilot scale of the novel process of α -branched acids production from olefines. Process allows to obtain individual α -acids higher than C ₉ able to form stable esters. Expected economical effect: 10,000,000 USA doll./year. Selected patents: NN 3,884,948(USA), 330,740(USSR); 664956(USSR); 1,524,775(UK); 1,353,677(UK). |
| 1970-1972 | Investigation and testing on a pilot scale of the novel process of esters production by oxosynthesis using the cobalt catalyst modified by piridins. Process allows to decrease the amount of byproducts by 50% and increase the yield of normal alcohols by 20%. |
| 1966-1970 | Discovery, investigation and full development of the oxosynthesis process of C ₄ aldehyde using novel naphteno-evaporative scheme. Total production volume: 200,000 ton/year (2 plants). Economical effect: 20,000,000 USA doll./year. Selected patents: NN 661,724 (Italy); 100,2691(UK), 1,315,589 (France); 169,103; 178,814; 245,759(USSR) |
| 1963-1966 | Discovery and laboratory investigation of 3-methylhexanol production from 2-methylpentene. Process allows achieving individual alcohol from propylene. Patent: N 249,353(USSR). |
| 1959-1963 | Discovery, investigation and full development of the oxosynthesis processes of C ₄ and C ₆ -C ₈ |

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| | aldehydes formation with low cobalt concentration (0.01%). Total production volume: C ₄ - 40,000 ton/year; C ₆ -C ₈ - 8,000 ton/year. Economical effect 2,000,000 doll USA/year. |
| PROFESSIONAL EXPERIENCE | |
| 1993-1998 | Founder and President Institute of Theoretical Chemistry, Shrewsbury, USA |
| 1991-1993 | Consultant |
| 1968-1991 | Principle Chemist Research Institute of Petrochemical Processes, Leningrad, USSR |
| 1960-1968 | Senior Research Chemist Research Institute of Petrochemical Processes, Leningrad, USSR |
| 1959-1960 | Chemist Research Institute of Petrochemical Processes, Leningrad, USSR |
| EDUCATION | |
| 1970 | Professor of Chemical Science and Technology |
| 1969 | Dr. of Science in Technology of Organic Synthesis Institute of Petrochemical Synthesis, Moscow, Russia |
| 1964 | Ph. D. in Organic Chemistry and Technology of Oxosynthesis Process Leningrad State University, USSR |
| 1953-1959 | M. S. in Pharmaceutical Chemistry Chemical-Pharmaceutical Institute, Leningrad, USSR |