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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); **Electromagnetism. Physics of Twenty First Century**, 2012, Renome, 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 1st Mendeleev's Society Award Gubkin Achievement Award 1st 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	
THEORETICAL RESEARCH	Investigation of the mechanisms of hydroformylation reaction, formation and decomposition of cobalt carbonyls. Discovery and description of a new type of the chain reactions of the complex compounds (“conence” chain reactions). Development of the general novel approach to the theory of chemical bonding, kinetics and catalysis. The explanation of the physical nature of the Periodic law, Lewis rules, rules for resonance, and valence has been proposed. The original Theory of Electroconductivity, the Theory of Metallic Bonding, the Theory of superconductivity have been developed. The framework for modern chemistry textbooks has been developed. The physical explanation of mass equivalence principle has been found. The necessity of the exception of mass from the fundamental essences has been proved, and the idea of replacement of mass by charge has been offered. The explanation of the stability of electron orbits and Solar system planets has been proposed. The physical mechanism of the Lorentz force action has been found. The framework for the development of the unified theory has been created. The unification of explanations of the physical nature of gravity, inertia, electrostatics, electrodynamics and strong intranuclear interactions has been developed.
1988-1991	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%. 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.
1984-1988	Discovery, investigation and testing on a pilot scale of the novel process of methylethyl ketone production from isobutiric aldehyde. Process allows to obtain 2-ethylgexanol and methylethyl ketone from propylene by oxosynthesis without byproducts. Patents are closed for public by the USSR government.
1980-1984	Discovery and investigation of the novel process of high ($>C_{15}$) normal dicarbonic acids production from unsaturated carbon acids. Patent are closed for public by the USSR government. Publications are available upon request.
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 isobutelene 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 á-branched acids production from olefines. Process allows to obtain individual á-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-methylgexanol 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 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