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Chief Researcher, Department of Thermal Properties and Structure of Solids and Nanosystems

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Born on October 28, 1948. Graduated from Kharkiv State University (Faculty of Physics) in 1971. Has worked in B. I. Verkin ILTPE of NASU since 1973; in the Department of Thermal Properties of Molecular Crystals since 1979. Defended his candidate's thesis entitled "Isochoric Thermal Conductivity of Solidified Gases" in 1988, and his doctoral thesis "Heat Transfer in simple Molecular Crystals and their Solutions at Temperatures of the order of and above the Debye Temperature in 2003. Head of the Department from 2008 to 2016, Chief Researcher since 2017.

Languages: Ukrainian, Russian, English.

The main direction of scientific activity is the study of isochoric thermal conductivity of simple molecular crystals and their solutions and heat transfer processes in them. The isochoric thermal conductivity of solid inert gases and a wide range of simple molecular crystals in both orientationally ordered and disordered phases has been studied: crystals of the nitrogen group, freons of the methane and ethane series, cyclic hydrocarbons, alcohols, etc., as well as their solid solutions. The correlation between the nature of the rotational motion of molecules and the behavior of thermal conductivity has been studied. The concept of multi-channel heat transfer in substances with low thermal conductivity has been developed. The transition from a purely phonon mechanism of heat transfer to heat transfer by "diffuse" modes with increasing temperature and impurity concentration in simple molecular crystals and their solutions has been studied. It has been shown that the value of the Bridgman coefficient, which characterizes the dependence of thermal conductivity on molar volume, is determined by the competition of heat transfer by phonons and diffusive modes.

V. A. Konstantinov is the author and co-author of about 80 articles in scientific journals, two reviews, and more than 120 reports at scientific conferences. Reviews:

1. V. A. Konstantinov, V. G. Manzhelii, Phonon scattering and heat transfer in simple molecular crystals, In Book: Lectures from the Winter School of Theor. Phys., 1993 Wroclaw, Poland, Plenum Press, New York and London, P. 321-333 (1994).
2. V. A. Konstantinov, Heat Transfer in Molecular Crystals, In Book: Heat Transfer - Theoretical Analysis, Experimental Investigations and Industrial Systems, Aziz Belmiloudi (Ed.), "InTech" Open Access Publisher, P.157-188 (2011)

Some selected publications:

1. V. A. Konstantinov, V. G. Manzhelii, R. O. Pohl, V. P. Revyakin, Search for the minimum thermal conductivity in mixed cryocrystals $(\text{CH}_4)_{1-\xi}\text{Kr}_\xi$, *Low Temp. Phys.*, **29**, 858 (2001).
2. V. A. Konstantinov, Heat transfer by low-frequency phonons and "diffuse" modes in molecular crystals, *Low Temp. Phys.*, **29**, 422 (2003).
3. A. V. Dolbin, M. V. Khlistyuck, V. B. Esel'son, V. G. Gavrilko, N. A. Vinnikov, R. M. Basnukaeva, V. V. Danchuk, V. A. Konstantinov, Y. Nakazawa, Peculiarities of thermal expansion of quasi-two-dimensional organic conductor $k\text{-(BEDT-TTF)}_2\text{Cu[N(CN)}_2\text{]Cl}$, *Low Temp. Phys.*, **42**, 1007 (2016).
4. V. A. Konstantinov, A.V. Karachevtseva, V. P. Revyakin, V. V. Sagan. The lower limit of thermal conductivity in multicomponent solutions of rare gas solids, *Low Temp. Phys.*, **45**, 325 (2019).
5. V. A. Konstantinov, A. I. Krivchikov, A.V. Karachevtseva, V. V. Sagan, Thermal transport in dynamically disordered phases of molecular crystals: A thermo activation mechanism, *Solid State Commun.*, **329**, 114241 (2021).
6. V. A. Konstantinov, A. V. Karachevtseva, V. V. Sagan, Phase V - T diagrams of solid hydrocarbons. Part III: cyclic compounds, *Low Temp. Phys.*, **49**, 1066 (2023).
7. V. A. Konstantinov, A. I. Krivchikov, V. V. Sagan, A. V. Karachevtseva, Hopping mechanism of heat transfer in cyclic hydrocarbons, *Low Temp. Phys.*, **49**, 422 (2023).
8. Md. Saiduzzaman, V.A. Konstantinov, O. Andersson, Thermal Conductivity of Solid Carbon Dioxide, *Inter. J. Thermophys.*, **46**, 70 (2025).