

Sagan Volodymyr Volodymyrovych

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Date of Birth: March 29, 1981

Work Address:

B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine

Department of Thermal Properties and Structure of Solids and Nanosystems

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Research Interests

- Experimental investigation of isochoric thermal conductivity in crystalline molecular compounds of varying densities over a wide temperature range, including both orientationally ordered and "plastic" orientationally disordered phases.
- Development of novel modified graphene-based nanosystems and nanocomposites, and study of their thermodynamic properties under extreme low-temperature conditions.

Academic Degrees

- Ph.D. in Physics and Mathematics, specialization 01.04.09 – *Low Temperature Physics*, 2008.

Academic Title

- **Senior Research Fellow** in Physics and Astronomy (Specialty 104), awarded in 2023.

Professional Experience

B. Verkin Institute for Low Temperature Physics and Engineering of the NAS of Ukraine

Department of Thermal Properties and Structure of Solids and Nanosystems

- *Engineer*, August 1, 2003 – December 31, 2004
- *Junior Research Fellow*, January 1, 2005 – July 31, 2013
- *Research Fellow*, August 1, 2013 – December 31, 2017
- *Senior Research Fellow*, January 1, 2018 – present

Education

- **1998 – 2002**
V. N. Karazin Kharkiv National University
Bachelor's degree in Physics, qualified as Bachelor of Physics and Teacher of Physics

- **2002 – 2003**

V. N. Karazin Kharkiv National University

Master's degree in Physics, qualified as Master of Physics and Teacher of Physics and Mathematics

Membership in Scientific Societies and Organizations

- Scientific Secretary of the Specialized Academic Council for Doctoral Degree Awarding, D 64.175.02
 - Member of the Scientific Council of the B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine on the topic: *Molecular Physics, Physics of Cryogenic Liquids and Crystals*
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Teaching Experience in Higher Education Institutions

- *National University of Pharmacy (NUPh)*, Faculty of Training for Foreign Citizens, Department of Fundamental and Language Training
Lecturer (part-time), 2012 – 2020
 - Supervision of student thesis projects at *V. N. Karazin Kharkiv National University*
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Languages

Ukrainian (native), English, Russian

Publications in Peer-Reviewed Journals (Last 5 Years):

1. Yu.V. Horbatenko, **V.V. Sagan**, O.A. Korolyuk, O.O. Romantsova, A.I. Krivchikov / Temperature dependences of thermal conductivity of solid heterogeneous crystalline and amorphous materials: An empirical approach to the description in the high-temperature region // *Low Temperature Physics* – 2024 - Volume 50, Issue 5, P. 379 – 388 – Q3. <https://doi.org/10.1063/10.0025621>
2. A.I. Krivchikov, A. Jeżowski, V.A. Konstantinov, **V.V. Sagan**, O.A. Korolyuk, D. Szewczyk / Enhancing thermal transport in ABS polymer with graphene oxide: insights into low-temperature thermal conductivity behavior and correlation with Boson peak anomaly // *Thermochimica Acta* – 2024 - Volume 733, 179696 – Q2. <https://doi.org/10.1016/j.tca.2024.179696>
3. V.A. Konstantinov, A.V. Karachevtseva, **V.V. Sagan** / Phase V–T diagrams of solid hydrocarbons. part III: Cyclic compounds // *Low Temperature Physics* – 2023 - Volume 49, Issue 8, P. 971 – 978 – Q3. <https://doi.org/10.1063/10.0020165>
4. V.A. Konstantinov, A.I. Krivchikov, **V.V. Sagan**, A.V. Karachevtseva / Hopping mechanism of heat transfer in cyclic hydrocarbons // *Low Temperature Physics* – 2023 - Volume 49, Issue 5, P. 548 – 552– Q3. <https://doi.org/10.1063/10.0017816>
5. V.A. Konstantinov, A.V. Karachevtseva, V.P. Revyakin, **V.V. Sagan** / Phase V–T diagrams of solid freons. Part II: halomethanes // *Low Temperature Physics* – 2022 - Volume 48, Issue 10, P. 840 – 844– Q3. <https://doi.org/10.1063/10.0014028>
6. V.A. Konstantinov, A.V. Karachevtseva, V.P. Revyakin, **V.V. Sagan** / Phase V–T diagrams of

fluorinated ethanes// Low Temperature Physics – 2022 - Volume 48, Issue 7, P. 556 – 559 – Q3.
<https://doi.org/10.1063/10.0011604>

7. 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 Communications – 2021 - Volume 329, P. 114241 – Q2. <https://doi.org/10.1016/j.ssc.2021.114241>

Honors and Awards

- Cabinet of Ministers of Ukraine Scholarship for Young Scientists (2008–2010)
- Winner of the 3rd Regional Competition "Best Young Scientist of Kharkiv Region" (2008)
- Presidential Scholarship of Ukraine for Young Scientists (2011–2013)

Participation in Research Projects

- 2011: Presidential Grant of Ukraine for the Support of Research by Young Scientists, State Registration №. 0111U004946;
 - 2020–2023: National Research Foundation of Ukraine (NRFU) project “Quantum Tunneling of Vibrational Excitations in the Thermal Conductivity of Crystalline and Amorphous Materials and Composites,” Registration №. 2020.02/0094;
 - 2023–2026: NRFU project “Low-Temperature Quantum Nanoscale Effects in the Thermal Properties of Densified Carbon Materials and Their Composites,” Registration №. 2023.03/0012.
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Conferences (Past 5 Years):

- International Scientific and Technical Conferences of Students and Young scientists «PhEE-2020», Sumy, Ukraine, 20-24 April 2020;
- Condensed Matter & Low Temperature Physics 2020 (CM & LTP 2020), Kharkiv, Ukraine, 8 - 14 June 2020;
- Conference of Young Scientists and Post - graduate Students "IEP-2021", Uzhgorod, Ukraine;
- International Students and Young Scientists Conference in Theoretical and Experimental Physics «HEUREKA-2021», Lviv, Ukraine, 18 - 20 May 2021.
- Condensed Matter & Low Temperature Physics 2021(CM & LTP 2021), P. 110, Kharkiv, Ukraine, 6 - 12 June 2021;
- International Advanced Research Workshop “Thermal Conductivity Of Solid States At Low Temperature”, Kharkiv, Ukraine, 8 June 2021;
- «Dynamics and thermal properties of disordered systems» Lviv, Ukraine, 20 September 2021;
- International Conference Uzhhorod School of Atomic Physics and Quantum Electronics to the 100th anniversary of the birth of Professor Ivan Zapisochny, Uzhhorod, Ukraine, 26 –27 May, 2022;
- Multiscale Phenomena in Condensed Matter, Krakow (online), Poland, 27-30 June 2022;
- Jubilee conference «30 years of the Institute of Electronic Physics of the National Academy of Sciences of Ukraine», Uzhhorod, Ukraine, 15–18 September, 2022;
- International Conference of Students and Young Scientists in Theoretical and Experimental Physics «HEUREKA-2022», Lviv, Ukraine, 18-20 October, 2022;
- 2nd International thermal conductivity workshop «Thermal Conductivity of solid states at low temperatures», Kharkiv, Ukraine, 8-9 November, 2022;
- International Conference Uzhhorod School of Atomic Physics and Quantum Electronics to the 100th anniversary of the birth of Professor Ivan Zapisochny, Uzhhorod, Ukraine, 26 –27 May, 2022;
- International conference of Young Scientist and Post-Graduate Students (IEP-2023), Uzhhorod, Ukraine, 15-18 May, 2023;

- International Conference of Students and Young Scientists in Theoretical and Experimental Physics «HEUREKA-2023», Lviv, Ukraine, May 16-18, 2023;
- YOUNG MULTIS - Multiscale Phenomena in Condensed Matter, Kraków, Poland, 3 - 5 July 2023;
- XIII International conference «Problems of thermophysics and heat engineering», Kyiv, Ukraine, 7 – 8 November, 2023;
- III International Advanced Research Workshop “Thermal Conductivity of solid states at low temperature”, Kharkiv (online), Ukraine, 25 October, 2023;
- «Lashkaryov’s readings- 2024» Young scientists conference on semiconductor physics, Kyiv, Ukraine, 4 April, 2024;
- International Conference of Students and Young Researchers in Theoretical and Experimental Physics «HEUREKA-2024», Lviv, Ukraine, 14 – 16 May, 2024;
- IV International Advanced Study Conference Condensed Matter and Low Temperature Physics – «CM<P 2024», Kharkiv, Ukraine, 3 - 7 June, 2024;
- INTERNATIONAL CONFERENCE (dedicated to the 100th anniversary of Professor Yu.M. Lomsadze’s birthday), Uzhhorod, Ukraine, December 17-18, 2024.