

Yuliya V. Fomenko

B.Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine (ILTPE)
47 Nauki Ave., Kharkov, 61103, Ukraine
Phone: +38(057) 340-09-94. E-mail: yufomenko@ilt.kharkov.ua



SUMMARY: 25 years of R&D experience in mathematical methods for processing experimental data, mathematical modeling, pattern recognition and software creation. 20 years of scientific and engineering experience in development of various thermal imaging methods.

EDUCATION: M.S. State Diploma in Mathematics, Mechanics-mathematical Department, Kharkov State University, Ukraine, 1989.

PROFESSIONAL EXPERIENCE:

2004-present: Leading Engineer, Department of Superconducting and Mezzoscopic Structures (LTPE). Processing experimental data by mathematical and statistical methods, mathematical modeling, pattern recognition and software creation for development of IR diagnostic methods within 10 projects supported of NAS of Ukraine and The Ministry of Education and Science of Ukraine, including:

- "Development and production the units for infrared thermal imaging system";
- "Development of the thermal imaging system for remote measurement of temperature fields of physical and biological objects";
- "Development and fabrication the components for two thermal imaging systems based on multi element photodetectors";
- "Development and production of two folding cryostats for thermovision systems with multi element photodetectors";
- "Development and fabrication of infrared filters for liquid nitrogen cooled photodetectors";
- "Thermal field analyzer for scientific research";
- "The hardware-software system for remote heat loss maps registration of heat power engineering objects for the purpose of energy-saving technology optimization";
- "Thermal imaging system for medical applications and thermal imaging methodological procedure for the quantitative analysis of the dynamics of anomalous thermal field of human";
- "Creating of the infrared diagnostic complex and the methods for the detection of the defects of composite elements of aircraft".

1991 - 2003: Engineer, Department of Magnetic and Elastic Properties of Solids (LTPE).

Creation of the software for calculating of the extreme sections in Fermi surface and their planes in intermetallic compounds of the transition and rare earth metals.

1989- 1991: Engineer, Laboratory of mathematical modeling, Special Research and Development Bureau for Cryogenic Technologies at ILTPE.

Mathematical modeling and pattern recognition.

Honors, Awards, Fellowships, Membership of Professional Societies: Member of the Ukraine Physical Society, State Program Research Projects, American physical society grant.

Languages: Russian, Ukrainian, English

PUBLICATIONS: 32 publications, including: 22 - articles in scientific journals, 5 - articles in conference proceedings, 5 - abstracts of conferences.

SELECTED PUBLICATIONS:

1. **Nondestructive Testing of Composite Materials of Aircraft Elements by Active Thermography.** E.Yu. Gordiyenko, N.I. Glushchuk, Yu.V. Fomenko, G.V. Shustakova, I.I. Dzeshulskaya, and Yu.F. Ivanko. // Sci. innovation 14(2): 37 (2018).
2. **The Results of the Study of Human Anomalous Thermal Fields under Irradiation.** N.I. Glushchuk, E.Yu. Gordiyenko, Yu.V. Fomenko, G.V. Shustakova, L.G. Miroshnichenko and N.N. Kolotilov / Sci. innovation 13(2): 43 (2017).
3. **IR imaging: identification of regional metastasis.** G.V. Shustakova, N.N., Kolotilov, N.I. Glushchuk, E.Yu.Gordiyenko, L.G. Miroshnichenko, Yu.V. Fomenko, T.B. Shustakova // Radiation Diagnostics. Radiation Therapy 2, 15 (2016).
4. **IR Imaging study of metastatic lymph nodes and lymphomas during radiotherapy.** G.V. Shustakova, N.I. Glushchuk, E.Yu.Gordiyenko, G.S.Yefimova, L.G. Miroshnichemko, N.N. Kolotilov, Yu.V.Fomenko // Radiation Diagnostics. Radiation Therapy 3, 41 (2015).
5. **Thermal Imaging System Based on a High Temperature Superconductor.** E.Yu. Gordiyenko, G.V. Shustakova, Yu.V. Fomenko, N.I. Glushchuk // Instruments and Experimental Techniques 56(4), 485 (2013).
6. **A Multi-element Thermal Imaging System Based on an Uncooled Bolometric Array.** E. Yu. Gordiyenko, N. I. Glushchuk, Yu.Ya. Pushkar, Yu.V. Fomenko, G. V. Shustakova // Instruments and Experimental Techniques 55(4), 494 (2012).
7. **A Broadband imaging system for research applications.** V.Yefremenko, V.Novosad, A.Datesman, J.Pearson, S.Bader, E.Gordiyenko, G.Shustakova, Yu.Fomenko. Review of Scientific Instruments 80, 056104 (2009).
8. **Effect of pressure on the Fermi surface and electronic structure of ErGa₃.** V.B. Pluzhnikov, A. Czopnik, O. Eriksson, G.E. Grechnev, Yu.V.Fomenko. Fizika Nizkih Temperat (Low Temp. Phys.) 25(8/9), 894 (1999).
9. Electron structure of intermetallic compounds HoIn₃ and TmGa₃. G.E.Grechnev, I.V. Svechkarev, Yu.V.Fomenko, A.Helm // Low Temp. Phys. 21(3), 254 (1995).