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**Education:**

1989	D.Sc.	Institute of Semiconductor Physics, Ukrainian Academy of Sciences, (Kiev, Ukraine);
1983	Ph.D.	Institute of Semiconductor Physics, Ukrainian Academy of Sciences, (Kiev, Ukraine);
1980	MS&BS	National University (Kiev, Ukraine)

Thesis Advisor: Prof. M.Ya. Valakh; Post doctoral Advisor: Prof. Manuel Cardona.

**Employment History:**

Since 1997 – Research Associate Professor, Texas Center for Superconductivity at the University of Houston, Houston, Texas;  
1997-1995 – Visiting Professor, Technical University of Berlin (Germany);  
1995-1992– Senior Research Scientist, Chalmers University of Technology, Gothenburg (Sweden);  
1992-1990 – Visiting Scientist, Max-Planck-Institute for Solid State Research, Stuttgart (Germany);  
1990-1980 – Professor, Associate Professor, Assistant Professor, Research Scientist at the Institute of Semiconductor Physics, National Academy of Sciences, Kiev (Ukraine).

**Honors and Awards:**

- European Community Fellowship, Technical University of Berlin (Germany), 1997-1995;
- Alexander von Humboldt Foundation Equipment Donation Grant, Bonn (Germany), 1992;
- Fellowship of the Max-Planck Society, Max-Planck-Institute for Solid State Research, Stuttgart (Germany), 1992;
- Alexander von Humboldt Fellowship, Max-Planck-Institute for Solid State Research, Stuttgart (Germany) 1991, 1990;
- Honor Medal of the National Academy of Sciences, Kiev (Ukraine), 1988;
- Junior Scientist Excellence Award, Institute of Semiconductor Physics, National Academy of Sciences, Kiev (Ukraine), 1986, 1985, 1984, 1983;
- Honor Diploma for the best graduate student work in USSR in the field of experimental and theoretical physics; Technical Physics Institute, Moscow (USSR), 1980.

### Recent Research Highlights:

- Infrared reflection spectroscopy is shown to be very efficient non-destructive tool for studying carrier dynamics of thermoelectric materials. It provides information not only about carrier concentration and mobility, but also energy dependent scattering rate and effects of carrier localization, which determine vital properties of thermoelectrics.
- Crystal-field spectroscopy is applied to monitor magnetic ordering transitions of hexagonal multiferroic  $\text{RMnO}_3$  materials (R=Er, Yb, Ho, Tm); effects of exchange-interaction-induced splitting of crystal-field transitions lines are found experimentally;
- Giant effects of spin-lattice coupling are discovered in multiferroic hexagonal  $\text{HoMnO}_3$  below the magnetic ordering transition temperature  $T_N \sim 76\text{K}$  through lattice dynamics analysis. Further, it was shown experimentally that spin-phonon interactions could be induced by the applied magnetic field.

### Lab Facilities/Expertise:

- optical properties of solids;
- infrared and Raman spectroscopies of high temperature superconductors, semiconductors and low-dimensional structures on their basis, superionic conductors;
- lattice dynamics; electron-phonon and spin-lattice interactions.

### Five Relevant Publications:

1. J. Cao, L.I. Vergara, J.L. Musfeldt, A.P. Litvinchuk, Y.J. Wang, S. Park, and S.-W. Cheong, Spin-Lattice Interactions Mediated by Magnetic Field, *Phys. Rev. Lett.* **100**, 177205 (2008).
2. A.P. Litvinchuk, V.G. Hadjiev, M.N. Iliev MN, L.V. Bing, A.M. Guloy, and C.W. Chu. Raman-scattering study of  $\text{K}_x\text{Sr}_{1-x}\text{Fe}_2\text{As}_2$  ( $x=0.0, 0.4$ ). - *Phys. Rev. B* **78**, 060503 (2008);
3. A.P. Litvinchuk, B. Lorenz, F. Chen, J. Nylèn, U. Häussermann, S. Lidin, L. Wang, and A.M. Guloy. Optical and Electronic Properties of Thermoelectric  $\text{Zn}_4\text{Sb}_3$  Across the Low-Temperature Phase Transitions. - *Appl. Phys. Lett.* **90**, 181920 (2007);
4. B. Lorenz, A.P. Litvinchuk, M.M. Gospodinov, and C.W. Chu. Field-Induced Reentrant Novel Phase and a Ferroelectric-Magnetic Order Coupling in  $\text{HoMnO}_3$ .- *Phys. Rev. Lett.* **92**, 087204 (2004);
5. A.P. Litvinchuk, C. Thomsen, and M. Cardona. Infrared-Active Vibrations of High-Temperature Superconductors: Experiment and Theory. - in “*Physical Properties of High-Temperature Superconductors IV*”, ed. by D.M. Ginsberg (World Scientific, Singapore, 1994), pp.375-469.