

Mikhail I. Fedorov is mainly known by his works in the field of physics of silicides. His papers have been devoted to the study of optical and transport properties of silicides, thermoelectric application of these materials and some theoretical questions. He has been a leader of the research resulted in elaboration of very efficient thermoelectrics based on  $Mg_2Si$ - $Mg_2Sn$  solid solutions

Mikhail I. Fedorov was born on July, 03, 1952, Leningrad, USSR (now St.Petersburg, Russia). After graduation from Leningrad State University as Physicist (Master of Science) he became a member of staff of Ioffe Physical-Technical Institute where he worked up to now. Now he is a leading researcher of the Laboratory for Physics of Thermoelements. He has been elected many times as a member of the Learned Council of Department of Physics of dielectrics and semiconductors of Ioffe Institute. He has the highest Russian scientific degree - Doctor of sciences. He published more than 120 papers and inventions.

The most important are:

Zaitsev V.K., Fedorov M.I., Gurieva E.A., Eremin I.S., Konstantinov P.P., Samunin A.Yu., Vedernikov M.V. Highly effective  $Mg_2Si_{1-x}Sn_x$  thermoelectrics. Phys. Rev. B, 2006, v.74, N4, p.045207

Zaitsev V.K., Fedorov M.I., Eremin I.S., Gurieva E.A. Thermoelectrics on the Base of Solid Solutions of  $Mg_2B^{IV}$  Compounds ( $B^{IV} = Si, Ge, Sn$ ). Thermoelectrics Handbook. Macro to Nano, ed. by Rowe D.M. 2006, CRC. Taylor & Francis, Chapter 29.

Fedorov M.I., Zaitsev V.K. Thermoelectrics of Transition Metal Silicides. Thermoelectrics Handbook. Macro to Nano, ed. by Rowe D.M. 2006, CRC. Taylor & Francis, Chapter 31.

Fedorov M.I., Zaitsev V.K. Semimetals as materials for thermoelectric generators, CRC Handbook of Thermoelectrics, 1995, N.Y., pp.321-328.

Fedorov M.I., Zaitsev V.K., Eremin I.S., Kartenko N.F., Konstantinov P.P., Popov V.V., Kurisu M., Nakamoto G., Souma T. Interconnection of Iron Disilicide Crystal Structure Parameters with its Thermoelectric Properties. Proceedings of XX Int. Conf. on Thermoelectrics (ICT 2001), Beijing, China, 2001, pp. 214-217

Fedorov M.I., Zaitsev V.K., Vedernikov M.V. Some peculiarities of development of efficient thermoelectrics based on silicon compounds. Twenty-fifth Int. Conf. on Thermoelectrics. Proceedings ICT'06., 2006, IEEE, pp.111-114.

Main achievements in thermoelectricity: New very efficient thermoelectrics based on  $Mg_2Si$ - $Mg_2Sn$  solid solutions have been elaborated. Existence of optical phonon drag effect in iron disilicide has been proved experimentally and theoretically. Theoretical base of the creation of cheap thermoelements with passive leg has been developed and the experimental models based on this theory have been made. A domestic thermoelectric generator based on silicide materials has been made and tested.