

## Professor Kerim Allahverdi

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Kerim Allahverdi, was born in 1944 and educated at the Moscow Power Engineering Institute (MEI), where he received degree in Electrical Engineering in 1967. His Institute diploma thesis was performed at the Lebedev Institute of Physics, Moscow and was devoted to the superconducting properties of layered Niobium Selenide crystals. In 1967 he finished 2 years English school in Moscow. In 1972 he received the degree of the Candidate of Physical Mathematical Sciences working at the Institute of Physics Azerbaijan National Academy of Sciences in close collaboration with the Lebedev Institute of Physics. In 1974-1975 he had Postdoctoral at the Clarendon Laboratory of Oxford University, UK. In 1982 he received a degree of Doctor of the Physical Mathematical Sciences submitting the thesis to the Institute of General Physics also, Moscow, working in close collaboration with the Institute of Spectroscopy and Institute of High Pressure Physics, Troitsk, Moscow Region. Since 1985 he is Professor in Physics. In 1992-1995 he is Professor in Physics at the Middle East Technical University, Ankara, Turkey. Since 1995 he is Senior Scientific Researcher at the Marmara Research Centre (MRC) of the Turkish Scientific and Technological Council (TUBITAK), Gebze, Turkey and Senior Research Scientist at the Institute of Physics Azerbaijan National Academy of Sciences.

As a visiting professor, researcher and invited lecturer, Prof. K. Allahverdi has presented, taught seminars and engaged in scientific collaboration at more than 40 Universities and Research Centers around the world, including Moscow State University; Oxford University, Cambridge University; Sheffield University, UK; London University; Imperial College, UK; MPI FKF, Stuttgart, Germany; RWTH Aachen, Germany; Bochum University, Germany; Bayreuth University, Germany; Hamburg University, Germany; US Air Force Wright Patterson Lab., Dayton; Colorado State University, USA; University of Cincinnati, USA; Tsukuba University, Japan and Madrid University, Spain.

He has been directing academic research in the field of physics and practical applications of layered semiconductors for over 30 years. Research Achievements include: new effective nonlinear materials in the system of layered gallium selenide- type semiconductors; first observation and explanation the nature of the low-temperature ferroelectric and high-pressure phase transitions in ternary layered chalcogenides. New class of the ferroelectric-semiconductors was discovered in a frame of joint research with the Institute of Spectroscopy, Troitsk, Moscow Region; first experimental investigation of the influence of ultra-short laser pulses on the transient-transmission change of layered A3B6 crystals and observation of quantum beats as due to the coherently excited fully symmetric phonons. As a result, new type of ultra-fast light modulator was suggested; first observation of the second harmonic generation in gallium selenide at 10.6  $\mu\text{m}$  and resonant excitonic second-harmonic generation; influence of intercalation on the electronic and vibration properties of gallium selenide-type crystals.

K. Allahverdi hands-on experience in: modern spectroscopy techniques-also under pressure (pump-probe experiments, Raman scattering, nonlinear harmonic generation and wave mixing, photo- and electro-luminescence, exciton spectroscopy and others; growth and characterization of single crystals, nanocrystals and polycrystalline materials; carrier transport and galvanomagnetic measurements, dielectric spectroscopy; supervising the students at graduate and undergraduate levels, advising Ph.D Theses; demonstrated ability in project management, communication and organization skill, energetic. Professor Allahverdi has received several awards, honors, membership and fellowships including Azerbaijan State Prize in Science (1988); Krupp's stipendium, Technical University Aachen (1989); Window-on- Science Award, US Air Force European Office of Aerospace R&D, USA (1996, 2001); Royal Society Award as visiting Professor (1987, 1989); Citation in the USSR Academy of Sciences List of Best Achievements of the Year for the determination of the interlayer parameters and the peculiarities of the phonon spectra of A3B6 semiconductors (1978). Same Citation for different achievements in 1983, 1989 and 1991. He is a member: of New York Academy of Sciences (1998); Azerbaijan National Academy of Creation (1988); Russian Engineering Academy of Sciences, named by A. M. Prokhorov (2008); Member of the Organizing Committee of the European High Pressure

Research Group (EHPRG) (1987-1990, 1991-1994, 1996-1999); Member of the Editorial Board, Turkish Journal of Physics; Reviewer of the JOSA, JAP, Materials Research Bulletin and others.

Professor Allahverdiev has published more than 275 articles on the linear and nonlinear optical properties of layered semiconductors, 1 book and 7 review articles. He has 5 patents.

Although a very busy personality Professor Allahverdiev finds time for sport (football, swimming). Among his other hobbies are gardening, walking, music (classic and modern).