BRIEF BIOGRAPHY

Alexander A. Balandin is a distinguished professor and vice chair for graduate education at the Department of Materials Science and Engineering (MSE) of the Henry Samueli School of Engineering and Applied Science (SEAS) at the University of California, Los Angeles (UCLA). He directs the Phonon Optimized Engineered Materials (UCLA POEM) Laboratory at the MSE department and the Brillouin – Mandelstam Spectroscopy (BMS) Laboratory at The California NanoSystems Institute (CNSI). Before rejoining UCLA, he served as a founding chair of the MSE program and director of the NanoFab at a sister UC campus in Riverside. He received his Diploma in Applied Physics from the Moscow Institute of Physics and Technology (MIPT), Russia, and his Ph.D. in Electrical Engineering from the University of Notre Dame, USA.

Professor Balandin's expertise is in the physics of materials. Among his research achievements are the pioneering investigation of the acoustic phonon transport and thermal conductivity of graphene and few-layer graphene; the study of the acoustic phonon confinement effects in semiconductor nanostructure; the development of the concept of phonon engineering; and the use of low-frequency electronic noise measurements for material characterization. He developed the optothermal technique for measuring the thermal conductivity of 2D materials by converting a Raman spectrometer to a heater and a temperature sensor. The technique became a standard method in numerous laboratories worldwide.

Professor Balandin's current research interests include low-dimensional 1D/2D van der Waals materials; charge density waves and strongly correlated phenomena in novel materials and nanostructures; inelastic light scattering spectroscopies; electron and phonon transport in quantum materials; thermal conductivity and thermal management; ultra-wide-band-gap semiconductors; emerging electronic devices and quantum technologies. Professor Balandin received The MRS Medal from the Materials Research Society and The Pioneer of Nanotechnology Award from the IEEE Society for his graphene, phononics, and nanotechnology research. He is an elected fellow of MRS, APS, IEEE, OSA, SPIE, AAAS, and The Institute of Physics professional societies. He was a visiting professor and elected fellow of Pembroke College, University of Cambridge, U.K. He is currently a Vannevar Bush faculty fellow (VBFF). He serves as a Deputy Editor-in-Chief of the Applied Physics Letters (APL). Professor Balandin graduated more than 40 Ph.D. students who enjoy successful careers in the U.S. industry, government laboratories, and academia.

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