



Alexei Kornyshev graduated in 1970 from the Moscow Institute of Engineering Physics with a degree in theoretical nuclear physics. He matured as a scientist at the Frumkin Institute of Electrochemistry (Acad.Sci.) in Moscow, where he did there his PhD (1974) with Prof. R.R.Dogonadze in Theoretical and Mathematical Physics and DSc in Chemistry (1986), having worked there till 1991. In 1992 he was invited to Research Centre Jülich, Germany, where he then worked for 10 years leading a Theory Division in the Institute for Materials and Processes in Energy Systems of Research Centre “Juelich”, Germany, a position combined later with a Professorship of Theoretical Physics

at the University of Düsseldorf. In 2002 he joined Imperial College London where he holds a chair of Chemical Physics since then.

His interests span widely in theoretical condensed matter chemical physics and its application to electrochemistry, nanoscience, biological physics and energy research, using methods of theoretical physics and computer simulations, and working in close collaboration with experimentalists. An author of >250 original, refereed papers published in physics and chemistry journals, and \approx 30 monographic/feature articles and book-chapters, he is known by his works in the theory of solvation; solid-liquid and liquid-liquid electrochemical interfaces (including functionalised and electrovariable interfaces); electron and proton transfer in complex environment (including membranes and complex electrodes) and single molecules; physical theory of fuel cells; interaction, recognition and assembly of biomolecules, DNA biophysics. In the area of the latter he has performed a series of works published together with S.Leikin (NIH) known as Kornyshev and Leikin theory, developed further later with his co-workers, D.J.Lee and A.Wynveen. Room temperature ionic liquids at electrified interfaces and in nanoconfinement and their applications to supercapacitors and electroactuators is an important direction of his current research, where since 2007 he has published a series of seminal papers, with M.V.Fedorov, S. Kondrat, R.Qiao and others. In 2010 together with Prof. M. Urbakh (TAU) and Prof. M.Flatte (Univ. Iowa) he has launched “electrovariable nanoplasmonics”, and continues working on the theory of self-assembled electrochemically controlled nanoplasmonic systems since then, cooperating on experimental front with the laboratory of Dr. J. Edel and Prof. A. Kucernak.

Through his research career he has led many international projects with groups in USA, Germany, Denmark, Israel, France, Canada, Russia, and Estonia. He was a recipient of 1991 Humboldt Prize in Physical Chemistry/Electrochemistry, 2003 Royal Society Wolfson Award, 2003 Schönbein Silver Medal (“for outstanding contributions to understanding the fundamentals of fuel cells”), 2007 Barker Electrochemistry Medal (“for his pioneering works and outstanding achievements in the application of modern theory of condensed matter to electrochemical systems”), 2010 Interdisciplinary Prize, Medal and Lectureship of the RSC (“for his many outstanding contributions at the interfaces of chemistry with both physics and with biology”), and 2017 Lynden Bell Award “due to distinguished career in the field of chemical physics of ionic systems”. He is an elected/appointed Fellow of IUPAC, IOP, RSC, RSB, ISE, and a Foreign Member of the Royal Danish Academy of Science. He is a senior Editorial Panellist of Scientific Reports (Nature Publishing Group), and is a Member of Editorial Boards of Journal of Physics Condensed Matter (IOP) and Current Opinion in Electrochemistry (Wiley). He is an appointed Advisory Professor of HUST, Wuhan, China, collaborating with the group of Professor Guang Feng in the area related to novel materials and scenarios for sustainable energy.