lifetime membership in MRS, and a unique trophy—a mounted ruby laser crystal, symbolizing the many faceted nature of materials research. The award recognizes those qualities most prized by materials scientists and engineers—brilliance and originality of intellect, combined with vision that transcends the boundaries of conventional disciplines, as exemplified by the life of Arthur von Hippel (http://vonhippel.mrs.org).

Jacob Klein selected for 2015 David Turnbull Lectureship Award

The Materials Research Society's (MRS) David Turnbull Lectureship Award recognizes the career of a scientist who has made outstanding contributions to understanding materials phenomena and properties through research, writing, and lecturing, as exemplified by the late David Turnbull of Harvard University. This year, Jacob Klein, Department of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel, has been selected to give the 2015 Turnbull Lectureship. Klein is cited "for discoveries which transformed our understanding of soft matter and interfaces, through sustained research, inspirational lecturing, and academic leadership." He will be presented with the award at the 2015 MRS Fall Meeting in Boston.

Klein has made landmark discoveries in polymer physics, in the understanding and control of surface forces, and in elucidating friction and lubrication in aqueous systems. He first studied polymer dynamics, and subsequently, the properties of polymer interfaces, surfaces, and wetting effects. In parallel, Klein focused on the behavior of confined simple and complex fluids, and on forces between surfaces, including steric interactions, nanotribology, and biological lubrication. His work is characterized by studying nature as directly as possible at a microscopic level, often developing, for this purpose, novel experimental approaches and designing state-of-the-art experimental approaches (including infrared microdensitometry and nuclear reaction analysis for polymer dynamics studies, and uniquely sensitive self-designed surface force balances for studying steric forces, confinement effects, and nanotribology). Klein has recently been expanding his basic studies to the biomedical area, with potential impact for alleviation of widespread lubrication-related diseases, such as osteoarthritis.

Klein's major achievements include the first experimental demonstration of reptation (*Nature* 1978) (snake-like motion of entangled polymers), using a novel, self-designed diffusion-measuring technique (*Nature* 1975, *Nature* 1977), together with the theoretical analysis of the onset of reptation and the idea of tube renewal. His findings—extended over the following decade by further discoveries on dynamics of entangled polymers (*Nature* 1983, *Nature* 1986, *Science* 1990)—firmly underpinned our molecular understanding of the rheology of entangled polymers. An additional major achievement was to first measure molecular attraction and repulsion mediated by polymers at surfaces (*Nature* 1980, 1982, 1984, 1988)—years before the advent of atomic force microscopy. Such forces underlie the steric stabilization of colloidal dispersions in myriad natural and synthetic systems. These findings became classic textbook material and played a major role in underpinning the modern understanding of dynamics of entangled polymers and of polymers at surfaces. More recent achievements by Klein include the discovery of confinement-induced phase transitions in liquids (*Science* 1995); the remarkable entropy-based lubrication that can be achieved by polymer brushes (*Nature* 1991, *Nature* 1994); and in particular, the discovery of the hydration lubrication effect (*Nature* 2001, *Science* 2002, *Nature* 2003, *Nature* 2006, *Science* 2009a), which underlies most lubrication processes in biology. Although these achievements are of a very basic nature, the effects they relate to are important in a much wider context of materials science, from the rheology of polymer melts and properties of colloidal dispersions, to tertiary oil recovery, and to more efficient tissue engineering and biomedical devices, such as prosthetic implants (*Science* 2009b).

Some 70 graduate students and postdocs received their training at Klein's labs (at the University of Cambridge, the Weizmann Institute, and the University of Oxford), of whom 26 are currently in tenured faculty positions in leading universities in Israel, Europe, China, and North America, including several who have achieved their own high level of distinction. In Israel, he was one of the pioneers in soft matter research, establishing (in the early 1980s) the first seminar and lecture series in soft matter and interfacial phenomena, and was later a founder of the Department of Materials and Interfaces at the Weizmann Institute. His awards include the Tribology Gold Medal (2012), the Royal Society of Chemistry Soft Matter and Biophysics Prize (2011), the Israel Chemical Society Prize (2010), and the American Physical Society High Polymer Physics Prize (1995). He is a Fellow of the Royal Society of Chemistry, the Institute of Physics (UK), the American Physical Society, and the European Academy.

https://doi.org/10.1557/mrs.2015.246 Published online by Cambridge University Press