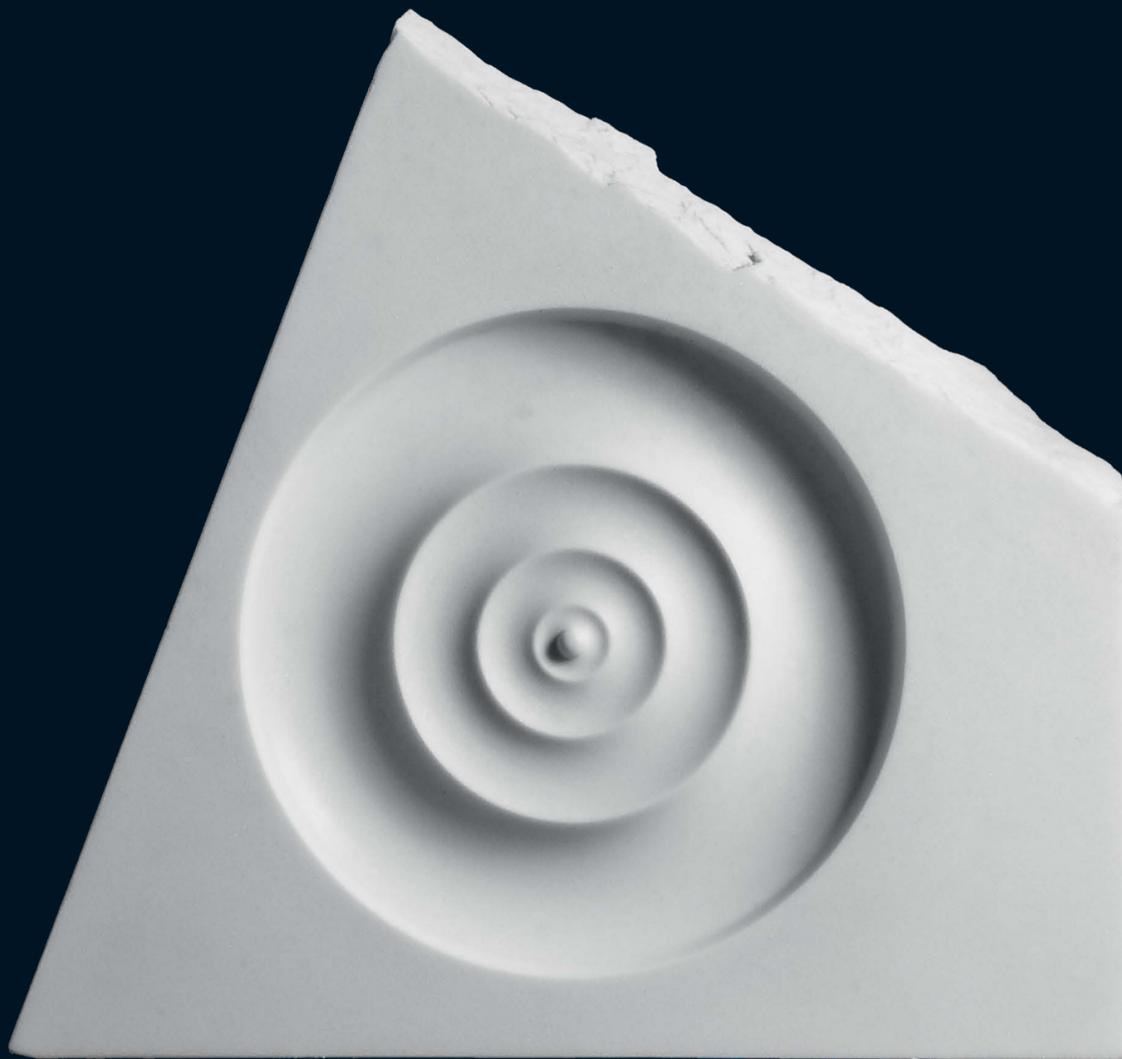


KARL WEISSENBERG (1893-1976)

Karl Weissenberg was born in Vienna, Austria, in 1893. He studied at the Universities of Vienna, Berlin and Jena, majoring in mathematics, but also attending lectures in physics and chemistry as well as law and medicine. At the age of 23, he obtained a PhD in Mathematics from the University of Jena. His teaching and research activities covered an unusually wide range of disciplines. Weissenberg published over 70 original papers on the most varied of subjects, including, in Mathematics, the analysis of symmetry groups as well as tensor and matrix algebra, and, in Medicine, on new methods for the measurement of blood-circulation and the application of X-rays in cancer treatment. His main contributions, however, were in X-ray Crystallography and in Rheology. In 1922, he joined the Kaiser-Wilhelm Institut für Faserstoffchemie in Berlin and developed methods for the determination of the constitution and crystallographic structure of solids of all kinds. His work culminated in the design of the "Weissenberg X-ray Goniometer", an instrument which allowed for the first time a unique determination of the crystallographic structure in three-dimensional space. Weissenberg became Scientific Adviser, Kaiser Wilhelm Gesellschaft, in 1925, and Professor of Physics, Berlin University, in 1932. Parallel to his interests in crystallography, Weissenberg developed an interest in the new field of Rheology. He predicted various effects, which were at the time paradoxical, on the flow of fluids and he verified them experimentally. Best known is the so-called "Weissenberg Effect": Visco-elastic materials subjected to torsional movements

by a rotating rod develop normal forces which make them climb up on the rod. Using dimensional analysis, he introduced a dimensionless number representing the ratio of elastic to viscous effects, which later became known as the "Weissenberg number". In 1933, Weissenberg became a refugee and took up residence in the UK, where he concentrated on his rheological interests. He designed a new type of measuring instrument, known as the "Weissenberg Rheogoniometer", which allowed for the first time the measurement of the development of material stresses during shear flow in all three directions of space. He worked for government and industrial research institutions in Britain, and held a number of consultancies to industry in Britain and the United States. As Weissenberg liked to explain in his later years, his dedicated interest in combining theory and experiment goes back to advice from Albert Einstein: When Weissenberg came to Berlin in 1922, he went to see Einstein to ask for guidance on his scientific career. Einstein, who, as Weissenberg reported, was preoccupied at the time of their meeting with other business, replied briefly "Bauen Sie Instrumente! (You should built instruments!)", an advise taken up well by Weissenberg! Karl Weissenberg had the reputation of "being an entirely engaging and unselfish person", of "being a delightful companion, and ever helpful friend and also an excellent tennis player". He retired in The Netherlands. An obituary, written at the time of his death in 1976, concluded that "he was notable in his scientific achievements and noble in his personal qualities".



award



Weissenberg



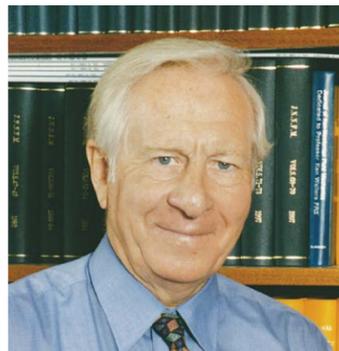
K. Weissenberg



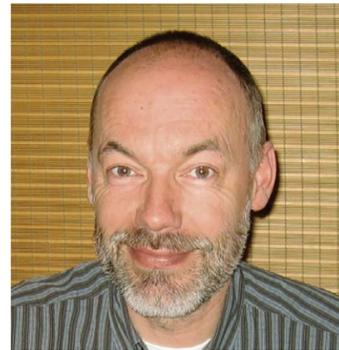
Pino Marrucci



Martin Laun



Ken Walters



Roland Keunings



Tom McLeish



Ole Hassager

THE ESR WEISSENBERG AWARD

In commemoration of the scientific achievements of Karl Weissenberg, performed in several European countries, the European Society of Rheology (ESR) decided in 1997 to create a "Weissenberg Award" for outstanding, long-term achievements in the field of rheology. Eligible are rheologists whose centre of scientific activities lies in Europe.

The award is bestowed biannually, and past recipients of the Award have been:

- Giuseppe (Pino) Marrucci (1998)
- Hans Martin Laun (2000)
- Ken Walters FRS (2002)
- Roland Keunings (2005)
- Thomas CB McLeish (2007)
- Ole Hassager (2009)



MANFRED WAGNER

MANFRED H. WAGNER, WEISSENBERG AWARDEE 2011

Manfred H. Wagner was born in Stuttgart, Germany, in 1948. After studies of Physics and Physical Chemistry at Stuttgart University and Oregon State University, Corvallis, USA, he graduated as a PhD in Chemical Engineering at the Institute for Polymer Processing of Stuttgart University in 1976. After 2 years as post-doc in Polymer Physics with Prof. J. Meissner at ETH Zürich, and after 9 years of industrial experience in the carbon and graphite field, he returned to Stuttgart University in 1988 as Professor for Fluid Dynamics and Rheology. In 1998/99, he was Dean of the Faculty of Chemical Engineering and Engineering Cybernetics of Stuttgart University. Since 1999, he is Professor for Polymer Engineering and Polymer Physics at Berlin Institute of Technology (TU Berlin). Manfred was President of the German Society of Rheology (DRG) from 1991 to 2003. Together with the then President of the British Society of Rheology, Ralph Oliver, he initiated the formation of the European Society of Rheology (ESR), for which he served as Secretary (1996 to 2005) and President (2005 to 2009). Since 2004, he is Secretary of the International Committee on Rheology (ICR). He is a member of the Editorial Boards of several key rheology journals.

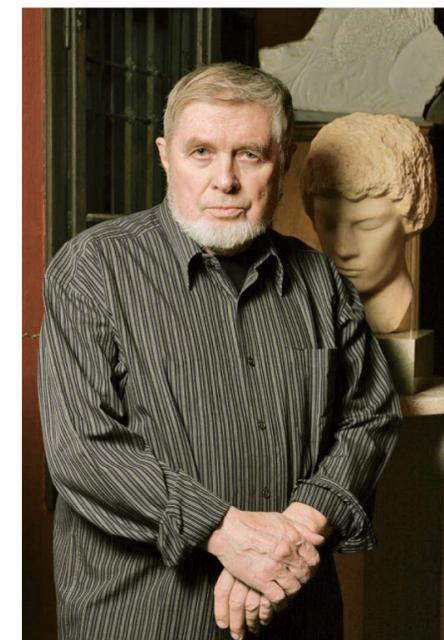
For more than three decades, Manfred has been a prominent figure in polymer rheology. His research has always been characterized by a quest to identify by thorough analysis, the underlying fundamentals in diverse experimental evidence, and to seek a fundamental understanding of phenomena. He has published to date over 200 papers on rheology and processing of polymers as well as solid state physics, and carbon and graphite technology. During his PhD studies on film blowing, he became intrigued by the elongational strain hardening behavior of LDPE as first investigated by Meissner, and later by Laun and Muenstedt. In a series of papers from 1976 to 1980, he demonstrated that the complex nonlinear elongational and shear flow behavior of polymer melts can be reduced to two material functions, the linear-viscoelastic relaxation modulus and a nonlinear strain function. For the latter, he coined the term "damping function", which became an important technical term in rheology, as well as the "Wag-

ner model" associated with it. For their achievements in elongational rheology, Meissner, Laun, Münstedt and Wagner received the Annual Award of the British Society of Rheology in 1981. Manfred was also one of the first to consider the relevance of irreversible destruction of entanglement connectivity by deformation (1979), a subject he and his co-workers returned to later with detailed studies on step-strain experiments (1998). By studying universal rheological aspects of polymer melts and rubbers, he gave a fundamental explanation of the origin of the C2 term in rubber elasticity (1994). Applying his insight in rheology to polymer processing led to the concept of Rheotens mastercurves (1998). For his outstanding contributions to the science and technology of polymers, the Institute of Materials, London, awarded him the Swinburne Award in 2002. His latest contribution to constitutive modeling of polymer melts, the Molecular Stress Function (MSF) theory developed since 2001, modifies the tube model of Doi and Edwards by considering the tube diameter to change with deformation. This assumption overcomes the most important disadvantage of the DE theory and produces excellent predictions consistent with the general tube model picture. For monodisperse linear polymers, by incorporating the interchain tube pressure concept of Marrucci and Ianniruberto (2004), the MSF model is in quantitative agreement with the experimental data presented by Ole Hassager and his group since 2003, and recently Manfred was able to prove that the tube diameter relaxation time is equal to three times the Rouse stretch relaxation time of the polymer chain (2009).

The outstanding point associated with Manfred's work is his ability to reduce complex experimental evidence to the relative simplicity of the underlying physical models and their respective mathematical formulations. He has made important advances in the field of rheology and beyond, relating fundamental aspects to application. His outstanding, long-term achievements have left their clear mark in the field of rheology. Manfred Wagner is a very approachable, very modest and friendly person, a man of warmth, charm and character. He is a dedicated teacher and a true scholar.

JANEZ PIRNAT

WEISSENBERG AWARD SCULPTOR



Sculptor Janez Pirnat was born in Ljubljana, Slovenia, on September 25, 1932. His father, Nikolaj Pirnat, was a renowned author, illustrator, graphic artist, painter and sculptor who taught at the Ljubljana Academy of Art. His mother, Nada Kraigher, was a writer. It was his father who, until his death, gave Janez his first lessons in drawing and modelling, which were then continued in the workshop of sculptor Jakob Savinšek. After grammar school, he took up the study of architecture and later on the study of sculpture at the Ljubljana Academy, from which he graduated in 1959. He continued his studies at the special school of sculpture and later at the Institute of Sociology and Philosophy in Ljubljana. He finished his studies with

a thesis on the »Slovene Impressionism in the Work of Ivan Grohar« (1964). He then took part in the launching of »Problemi«, a cultural and sociological magazine, and was its chief editor for two years. He travelled widely in Italy, France, Switzerland, Germany, Belgium, the Netherlands and the former Soviet Union. In 1967 he received a grant from the Ford Foundation and spent a year working in the United States.

In 1959, he set up an open-air studio at Sipar, near Umag, Croatia. Since then he has been a regular visitor to the Istrian quarries spending the major part of the year in Istria. Between autumn 1963 and spring 1964 he helped organize the artists' colony in a picturesque town of Grožnjan, and in autumn 1964 he sculpted his »Noše« (a series of National Costumes) in this beautiful medieval setting.

Pirnat had his first public exhibition in Idrija in 1951. Since then, he has had several solo exhibitions in Ljubljana and in nearly all principal cities of the former Yugoslavia.

He also held one-man exhibitions abroad: Paris (1970), Udine (1872), Brussels (1970, 1973 and 1977), Bayreuth (1980), Zürich (1982), Gorizia (1983) and Trieste (1984).

He has taken part in collective exhibitions at home and abroad. Every year since 1985, he opens the door of his studio in Ljubljana for a whole week in December, where he organizes an exhibition for a selected guest and also exhibits his own latest works.

His larger sculptures and monuments have been erected in Ljubljana, Celje, Kanal by Soča, Nova Gorica, Idrija, Prevoje near Domžale, Portorož, Umag and Lipica. His work can also be found in public and private collections at home and abroad. In 1966, he was awarded second prize at the Belgrade Book Fair for illustrations of the poems by Li Tai Po. In 1979, he received the Award of the Insurrection of the Slovene People for Sculpture and in 1984 the Župančič Award of the City of Ljubljana, also for his sculptural work.

He lives and works in Ljubljana and at Sipar in Istria (Savudrija).



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