The Kolloid-Gesellschaft awards the Thomas Graham Prize for exceptional merits in colloid science, for encouragement of international cooperation in colloid science and advancements in interdisciplinary research. Armin Weiss is deserving of this prize because of his activities during the last 30 years.

In 1966, Armin Weiss became the editor of Kolloid Z. Z. Polymere. During this time, the journal (founded 1906 by Wolfgang Ostwald) was already an international journal. Nevertheless, the transformation of it into Colloid Polymer Science in 1974 was indicative of the strong international orientation of Armin Weiss. In the 20 years in this position, he made strong efforts to publish outstanding contributions in almost every area of colloid and interface science.

During this period Armin Weiss was also President of Kolloid-Gesellschaft. He held this position for over 20 years (1967-1987), almost as long as Wolfgang Ostwald (1922-1943). At the beginning of this period the destiny of the Kolloid-Gesellschaft was oscillating between a quietly running German group and a vivid association with an international reputation. Armin Weiss was responsible for gaining the international reputation of this society. In the 1960s, this was not as easy as one imagines today.

The charming, fascinating personality of Armin Weiss and his high scientific reputation outside Germany promoted this metamorphosis of the society into one with an international standing. He also created many contacts between the Kolloid-Gesellschaft and industrial research and application groups; he always stressed the importance of diffusion through the interface between the society and the industrial sector.

Armin Weiss' activity for the Kolloid-Gesellschaft was recognised world wide: 1979-1983 he was appointed Vicepresident of the International Association of Colloid and Surface Scientists. In this period, 1978-1982, he also served as Vicepresident of the Association International pour l'Étude des Argiles.

The success of Armin Weiss as editor of Colloid Polymer Science and as President of the Kolloid-Gesellschaft was certainly not based on red-type behavior (he always stays in an atmosphere of "ordered chaos") but solely on his exceptional ability to persuade people of his ideas and on his outstanding scientific reputation.

The oeuvre of Armin Weiss is of greatest importance. In his doctoral thesis (1953, Technical University Darmstadt, Professor Ulrich Hofmann) he described reactions in the interlayer space of layered crystals.
After two years (!) he passed the Habilitation with a contribution about cyanides of transition elements. In the 1950s he published studies on the structure and properties of various chalcogenides, silicides, germanides, cyanides, mercury compounds, thiosalts, etc. (many papers together with his brother, Alarich Weiss, G. Nagorsen, and H. Schäfer). An highlight was the preparation and crystal structure determination of a new modification of silicium dioxide which consists of infinite chains of SiO₄ tetrahedra sharing opposite edges.

The first publication (1951) was “Batavit”, a vermiculite-like 2:1 clay mineral. As a student in the group of Ulrich Hofmann (Diploma examination in Munich, 1951) he acquired a long lasting interest focused on the study of clay minerals. He described fibrous vermiculite, wollehskąsite and saponite, but his main interest lay in the study of ion exchange properties and the intracrystalline reactivity of the clay minerals, in particular towards organic compounds. Thus, numerous intercalation compounds were first described by Armin Weiss and coworkers. In this field of research he also contributed to our knowledge of mechanisms of petroleum formation, and, for some time, he was engaged in the discussions about the role of clay minerals in the origin of life. We have enjoyed and preserved a vivid memory to endless discussions on this topic in Munich. Unfortunately, these brilliant ideas were never published in the convincing original framework.

A significant impact on colloid science resulted from studies on the thixotropy of clay mineral dispersion. The current understanding of ceramic processes is based on the principles of colloid chemistry of clay minerals worked out by Ulrich Hofmann and Armin Weiss.

More recently, Armin Weiss and coworkers studied alteration of clay minerals by phosphate and formation of tarsanikite and other aluminophosphates, an important aspect to be considered when clay minerals are used in barriers.

A milestone (1961) was the observation of the intercalation capability of kaolinite, when kaolinite was reacted with urea. The idea behind these experiments was that the hydrogen bonds between the kaolinite layers may be opened by molecules such as urea, which are known to break hydrogen bonds.

This discovery not only resulted in practical applications but provided an explanation of the secret of Chinese procelain. Everyone who was lucky to attend one of his lectures on this topic was deeply impressed by his fascinating bridging between old eastern cultural heritage, empirical knowledge and modern science.

A few years later, Armin Weiss observed the intercalation of organic molecules into titanium disulfide and initiated a new field of research. Since then, the number of new intercalation compounds had increased rapidly.

In parallel with the studies of 2:1 clay minerals he investigated intracrystalline reactions of various layer compounds such as titanates, phosphates, vanadates, uranium micas (often together with K. Hartl and E. Michell), graphite oxide and, more recently, iron oxychloride and earth alkali quadrates (together with C. Robl). He also described, for the first time, the two-dimensional swelling of many chain-like compounds: polyphosphates, polyvanadates, mercury amidosulfonates, alginic acid, pectic acid and deoxyribonucleic acid.

A fascinating aspect of his research was the study of silicosis. In 1958 he analyzed solid materials enriched in human lungs and isolated a swelling, toxical iron phosphate silicate, which grows within the air cells and finally destroys them.

Besides these studies Armin Weiss was also interested in complex chemistry and published several papers on silicon complexes with octahedral coordination. More recently, he (together with S. Dick) modified the clay mineral surface with binuclear iron complexes to prepare enzyme models.

Armin Weiss continuously covered new fields of interest. He initiated solid state chemistry at high temperature (with K. Hartl) and high pressure (with K. J. Range). Dielectric measurements on layer compounds (with G. Schön) laid the foundations for dielectric spectroscopy and modern impedance spectroscopy in material research. Detection of kink-type conformational changes of the alkyl chains in bimolecular interlayer films (with G. Lagaly) bordered on polymer chemistry and biomembrane science.

He also studied the nerve myelin structure and excitation of nerve cells.

In 1974 he initiated (together with H.-P. Boehm and G. Lagaly) an advanced course “stability of dispersions and emulsions”. This training of scientists from industry and practice became one of the most effective courses of Fortbildungskurse der Gesellschaft Deutscher Chemiker. From 1967 to 1969 he performed 27 telecourses on general and inorganic chemistry.

Armin Weiss was always open to discussions of environmental problems. An increasing activity in this field was not unexpected as Armin Weiss always engaged himself fully in all areas he touched. From 1986 to 1990 he acted as a member of the Bayerischer Landtag (parliament of Bavaria). Many of his colleagues could not understand his consequent morale since this was connected with many troubles and hostilities.

As annex we report biographical data:

1927 born in Steffing (a small village near Regensburg), 1943–1945 Luftwaffenhelfer in the second world war. 1945 Vorexamen in pharmacy, 1947–1951 study of chemistry in Regensburg, Würzburg and München. 1951 diploma examination in Munich,