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## 9. Oskar Friedrich Olaj

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## Personalities in Polymer Science



Oskar Friedrich Olaj

### Honoring Professor Oskar Friedrich Olaj on his 65th Birthday

Oskar Friedrich Olaj is the leading polymer chemist in Vienna, continuing a tradition in polymer chemistry which was started several decades ago by the legendary Hermann Mark. He is also one of the leading physical chemists in the German speaking scientific community and in the world. Especially notable is his competence and dedication to both science and the arts, especially to music.

Oskar Friedrich Olaj was born on January 20, 1935 in Vienna as the son of Oskar Olaj, a chemist, and Josefa, née Götzinger. He grew up in Vienna in Wilring, went to Elementary School in Vienna from 1940–44 and in 1944, he entered the Realgymnasium (Middle and High School) in Vienna. In January 1945, at the end of the war, Olaj's family was relocated to Schrobenhausen in Bavaria where Young Oskar continued his High School studies until December 1949 when he returned to Vienna and completed High School in the XVIII district, graduating in 1952.

Oskar Friedrich Olaj studied Chemistry and Physics at the University of Vienna and, from 1956–1959 worked on his thesis, *Polymerization Kinetics in the Presence of Multifunctional Chain Transfer Agents* under the direction of Professor J. W. Breitenbach. He received his Ph.D in 1959, in 1958 he had been appointed Instructor at the I. Chemical Institute (now the Institute of Physical Chemistry) of the University and was promoted to Assistant Professor in 1963. During the period from 1960–1961, he took a leave of absence and worked as a research chemist

in Basle, Switzerland at the CIBA Company, which at that time was one of the leading chemical companies in Europe. This period allowed him to gather invaluable experience in industry.

In 1970/1 he received the title of *Docent* (Associate Professor) for Physical Chemistry with a thesis entitled *The Kinetics of Spontaneous Thermal Polymerization of Styrene*. From 1973–1975, he also taught "Physical Chemistry of Plastic Materials" at the University of Leoben, in Austria. He was officially appointed Associate Professor in 1975 and Head of the Division "Physical Chemistry of Polymers" with responsibilities for the Laboratory Courses in physical chemistry for the entire Institute. In 1977 Olaj received a call as Full Professor of Physical Chemistry at the University of Vienna which he accepted. He received also a similar call for a professorship in Macromolecular Chemistry from the Technical University of Aachen in Germany, which he declined.

Oskar Friedrich Olaj is a dedicated teacher, and a lecturer *par excellence* in physical chemistry. He is not only well recognized for his basic lectures but also for his special courses, and still supervises the laboratory course in physical chemistry.

Oskar Friedrich Olaj's scientific work may be characterized by two main directions: Kinetics of Polymerization and Computer Simulation of Polymeric Systems.

*Kinetics of Polymerization:* He studied the statistical mechanics and thermodynamics of polymeric systems (a prerequisite for the understanding of termination processes), spontaneous thermal initiation, chain transfer reactions with multifunctional chain transfer reagents, theory of chain termination, distribution of chain lengths, determination of individual rate constants in radical polymerizations, electrochemical initiation of polymerizations and pseudostationary polymerizations.

*Computer Simulation of Polymeric Systems:* Monte Carlo Simulation with single chains, chain pairs, simulation of polymeric systems on a lattice lacking empty spaces, with special emphasis on the properties of polymers in the solid state, simulation of polymer surfaces and interphases, simulation and modeling of polymerization processes and simulation of polymeric systems.

Olaj's work is recorded in 150 scientific papers, 65 lecture reports, a number of book chapters and several patents. Not surprisingly, he is in demand as an Editor and as a Member of Editorial Boards of several professional Journals. Since 1970, he has been the co-editor of "Die Makromolekulare Chemie", from 1980–1992 he was European Editor of the *Journal of Applied Polymer Chemistry*, and is (or was) on the Editorial

Board of "Monatshette für Chemie" and the "Journal of Applied Polymer Chemistry".

Olaj is a Member of the Austrian Chemical Society, the German Chemical Society and the American Chemical Society, a Member of the German Bunsen Society for Physical Chemistry and the Austrian Chemical-Physical Society. Since 1995 he has been a Corresponding Member of the Austrian Academy of Sciences.

From 1974–1981 Olaj was the Chairman of the Division "Macromolecular Chemistry" of the Austrian Chemical Society. Since 1979 he has been an appointed Member of DECHEMA, in Frankfurt, Germany. From 1980–1992 he was the Austrian National Representative of the Division "Macromolecular Chemistry" of IUPAC, and, from 1993–1997, he was a Member of the Board of the German Bunsen Society for Physical Chemistry.

For his scientific and other contributions Olaj received a number of awards and prizes: The Dr. Theodor Koerner prize in 1966 and 1970, in 1975, the Rudolf Wegscheider prize, in 1993 the Erwin Schroedinger prize of the Austrian Academy of Sciences, and in 1997 the Hermann F. Mark medal of the Austrian Research Institute for Chemistry and Technic.

Oskar Friedrich Olaj has always been committed to his academic responsibilities. He was Head of the Institute of Physical Chemistry from 1978–1984 and again from 1998–1999, and the Acting Head of the Institute for Inorganic Chemistry from 1995–1996.

Olaj was also the Chairman of the Commission on Chemistry Studies from 1988–1992, of Commission on Special Activities in Chemistry from 1991–1999, of the Commission for Professors in the Faculty of Science from 1988–1990, and for the Commission of the Structure of the Faculty from 1994–1999. From 1991–1999 he was a Corresponding Member of the Conference of Professors of Austrian Universities, and a Member of the Conference of Professors of Austrian Universities from 1993–1995.

Oskar Friedrich Olaj has a musical talent that might have rivaled the greatest of Austrian pianists of the 50's, Badura-Skoda or Gulda. Olaj had all the necessary piano background and had demonstrated his competence in competitions, but—in 1958 he decided to commit himself to Chemistry instead of the Arts and his beloved piano. Had chemistry not won, would we have had in Olaj another Rubinstein ?? We certainly have been graced to have an exceptional physical chemist in the polymer field.

Now to Olaj's training in music. Already in 1940, his exceptional talent was recognized and he started lessons on the piano and in music theory. This lasted until 1952, when he started the formal music training at the

## Columns

Conservatory of Music at the Prayner Conservatory in Vienna IV. Until 1958 he participated in the classes presented by the famous piano teacher Hans Weber. In 1954 Olaj entered the piano competition of the private teachers of Austria and obtained second prize. At the next competition, in 1957, he received the first prize. Based on these successes Olaj gave a number of International performances. In 1957, he played in Bayreuth on the occasion of the Symposium Jeanesque musicale and in 1958 at a piano recital at the Conservatory of Music in Vienna.

In 1958 with great reluctance and sadness Oskar Friedrich Olaj decided to give up his focus on the piano and concentrate on his future career in chemistry. He still gives piano concerts, but more on a private, not professional basis. Since 1974, he has been playing the piano parts in chamber music performances, especially in "Chemistry Concerts" with highly competent friends in music and colleagues in chemistry. One of them was the trio at the opening ceremony of the Meeting of the Bunsen Society in 1992 in Vienna.

In March 1964, Oskar Friedrich Olaj married Susanna Kratzert, also a chemist. They had two children, a daughter Ina, born in 1968 and a son Olaf, in 1970, who died when in infancy. Chemistry and music are a common denominator in the family Olaj. They can frequently be seen in concerts and at the Opera. This musical and artistic surrounding has also been part of their daughter's upbringing. She is now an Assistant to the stage director at the Opera in Graz.

This article was prepared by **Otto Vogl**, Herman F. Mark Professor Emeritus, Department of Polymer Science and Engineering, University of Massachusetts, Amherst, MA, 01003-4350, U.S.A.