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55. Hermann Janeschitz-Kriegl

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Personalities in Polymer Science



Hermann Janeschitz-Kriegl

To most polymer scientists **Hermann Janeschitz-Kriegl** is known as the pioneer of **flow-birefringence** and for his fundamental contributions to the **solidification of polymers crystallization**.

Hermann Janeschitz-Kriegl was born on October 22, 1924 in Graz, the second largest City in Austria, which is well known for its cultural and intellectual life. In Graz he went to Elementary school, to High School from which he graduated with high honors, and then, entered the University of Graz. Even during his studies at the University, he recognized the necessity of wide range study and became interested in theoretical physics. His dissertation on "Contributions to the Physical Chemistry of Micellar Systems" was accomplished under the guidance of the famous Professor Otto Kratky (see *Polymer News* 1992); he received his Ph.D. in 1951.

Janeschitz-Kriegl subsequently joined a mid-sized pharmaceutical company in Graz, but did not find the work especially challenging. Through an acquaintance he was introduced to the Centraal Laboratorium TNO, the world renowned institution in Delft, Netherlands. In 1952 he accepted an appointment from this Institute and became responsible for research sponsored by industry. Janeschitz-Kriegl's activity at the TNO confronted him with a multiplicity of problems in polymer research and suited

his capabilities exceptionally well. Not only could he solve the required problems experimentally but he could also provide the theoretical bases for his experiments. During this time-period, investigations involving rheology, heat transfer, measurement of temperature and pressure, the correlation of extrusion and injection molding emphasizing especially flow-birefringence of polymer solutions and polymer melts were carried out. For many of these investigations, Janeschitz-Kriegl constructed and reconstructed the measuring devices which were needed to carry out the investigations effectively.

Very soon the work was also recognized by academic scientists and, in 1968 he received a call to the chair of Physics and Chemistry of Macromolecular Materials at the Technical University of Delft, Netherlands.

In his new position, he was able to demonstrate his talent as a teacher, as a lecturer but also as a director of these; much of this work received world-wide attention. Of particular importance was the presentation of the phenomena of flow-birefringence. At this time there was also intensive cooperation with the research organization of Philips Research (Eindhoven, NL) which still continues.

When the chemistry curriculum was introduced at the Faculty of Science at the Technical University of Linz, it was conceivable to bring an internationally recognized scientist, such as Janeschitz-Kriegl back to an Austrian University. Recognizing the opportunities to develop a new department and laboratory with the certainty that his special knowledge might contribute to the needs of the Austrian academic scientific community, in 1978, Janeschitz-Kriegl accepted the call to the University of Linz as Professor of Physical Chemistry. In addition, this appointment was an important challenge to utilize his internationally recognized knowledge to support the Austrian industry, where considerable amounts of polymers are produced and fabricated. Even though his time was substantially occupied by the preparations for lectures and laboratory developments, his scientific research was by no means short-changed. He focussed his research activities even more extensively to studies on the heat transfer during extrusion and injection molding, the influence of molecular parameters on the viscoelastic properties of polymer melts and the

avoidance of remaining birefringence for example, in compact-discs. His book on "Polymer Melt Rheology and Flow-Birefringence", published in 1983, has become a classic in polymer processing.

From 1981 to 1983 Janeschitz-Kriegl was Dean of the Faculty of Science of the University of Linz.

During this period Janeschitz-Kriegl was engaged to develop and maintain intensive contacts with industrial laboratories at home and abroad, pointing out continuously the importance of the kinetics of the crystallization of polymer melts, especially under condition of heat transfer and flow. It is in the last decade that he has developed this field with great perseverance and dedication.

Janeschitz-Kriegl is highly regarded by the polymer community. He is a Fellow of the Institute of Materials (the former Plastics and Rubber Institute), London, was Guest Professor at the University of Wisconsin, Madison, USA, at the University of Queensland, Brisbane, Australia, at the University of Akron, Akron, USA, the ETH in Zurich, Switzerland, and has had numerous invitations as a speaker at International conferences.

Janeschitz-Kriegl has published about 110 scientific papers in international Journals and is a member of the Editorial Boards of *Rheological Acta* and *Progress in Polymer Science*.

A most successful scientific career of accomplishments, such as Janeschitz-Kriegl's also brings well deserved recognition. Only recently he received the Mark Medal and an honorary doctoral degree of the University of Leoben, Austria (1994).

Janeschitz-Kriegl is not only an outstanding scientist but is highly accomplished musician. The musical activities of Janeschitz-Kriegl, who plays the *violin* and *viola*, has played an essential role in the life of the family Janeschitz-Kriegl and his wife. Already in Delft both played in the University orchestra. Now, the University orchestra of the University of Linz would be unimaginable without the participation of the Janeschitz-Kriegels (Gertrude Janeschitz-Kriegl is *its first violinist*) as their central part.

In 1953 Hermann Janeschitz-Kriegl married Gertrude Gretitsch; they have 4 children whom they have raised to individual and self-sufficient per-

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sonalities. Both daughters are teaching science in high schools in Austria, the older son, who retained Dutch citizenship has an Engineering degree and the youngest son is a professional *cellist* at the Augsburg philharmonic orchestra.

This article was submitted by Anton Schausberger, University of Linz and Otto Vogl, Herman F. Mark Professor, Brooklyn, NY, USA.