
Reminiscences of Professor Georges Smets (1915-1991). On the development of macromolecular chemistry in Belgium and his contributions to it in the international polymer chemistry community

*Marcel Van Beylen**

On January 28, 1991 about 15 minutes before I was to deliver my weekly lecture on macromolecular chemistry, which Professor Smets had given for 40 years, the secretary told me with tears in her eyes that Professor Smets had died. He died at the age of 75 about 7 years after retiring and becoming an Emeritus Professor, after 40 years of a very productive career.

Polymer chemistry in general, and particularly in Belgium where he was the first to start with it, is inextricably connected with him in person.

After brilliant studies at the Catholic University of Louvain (bilingual at the time) he obtained a PhD in Chemistry but also the degree of Pharmacist. After a short period as a researcher at the Society GEVAERT (later Agfa Gevaert) he was appointed at the University of Louvain in 1944, where he created the laboratory of macromolecular chemistry.

Few of those who had the privilege to know him as a teacher, as their thesis supervisor, as a colleague, as a friend are able to imagine polymer chemistry in Belgium and elsewhere in the polymer world, without Professor Smets' contributions. Indeed, Professor Smets was involved in the early stages of polymer chemistry and over the years, he has not only enthusiastically shared his knowledge with his students, but exported it all over the world.

Numerous people, both in the scientific and the industrial world, have sought his advice over the years, very understandably so, because Professor Smets has made many fundamental contributions to nearly all fields of macromolecular chemistry. He was one of the first to show successfully the possibilities of block- and graft copolymerisation by the radical transfer reaction between a growing chain and a pre-existing polymer. By incorporating peroxide groups into polymers or by put-

* Laboratory of Macromolecular and Physical Organic Chemistry, University of Leuven.
marcel.vanbeylen@chem.kuleuven.be

ting them at their ends, several original methods of graft and block-copolymerisation by radical mechanisms were established years before anionic polymerisation later became the customary way to produce them. Later, photochemical initiation procedures based on the photolysis of photosensitive side groups or groups built into the polymer chain were also used.

Professor Smets' background in organic chemistry led him to extensive studies of organic reactions on high polymers and intramolecular functional interactions, in the course of which he was one of the first to draw the attention to the influence of the intramolecular structure and stereospecificity of the polymers formed during the reactions and on the nature of group interaction.

Knowledge of organic chemistry and its recent progresses were at the origin of Professor Smets' skills in the synthesis of new polymers using recent methods of organic chemistry such as cyclodimerisation, dipolar cycloadditions, carbene and azide reactions, either for the preparation of new monomers followed by their polymerisation or for direct polyaddition reactions.

Another of his many fields of interest was the synthesis of properties of photochromic polymers and copolymers. Incorporation of photochromic groups into a polymer molecule yielded deep insights in the internal structure and the physical properties of polymers such as chain segment mobility and transition phenomena. He also observed photomechanical phenomena in the case of photochromic networks, which showed photocontractile behavior.

These phenomena led him to study several photochemical and thermal reactions, e.g. isomerisation, dissociation, and recombination in solid polymer matrices, stressing the importance of the physical properties of the polymer medium on the course of these reactions. The above is not an exhaustive survey, as Professor Smets also treated problems like anionic polymerisation and copolymerisation and the synthesis of polyampholites, their complexation behavior towards metal salts and their significance for selective membrane synthesis.

In view of the main research areas of Professor Smets it is not surprising that the IUPAC Polymer Chemistry Meeting held in his honour in the autumn of 1984, in Leuven, was mainly devoted to "Block and Graft Copolymerisation and Mechanisms, Polymer Transformation Reactions and Polymer Photochemistry".

Well aware also of the importance of the physical properties and the potential applications of the polymers synthesised, Prof. Smets also created a section of physical chemistry and physics of polymers and took in some more physically oriented people in his laboratory.

At this time the synthetic polymer chemistry is still flourishing in combination with the laboratory of electronics and photonics to produce, under the guidance of a young research associate,

present-day polymers with special optical and magneto-optical properties. He is keeping up the former level of the laboratory.

The originality and significance of the work of Professor Smets found broad international recognition. Indeed, not only have a great many scientists from abroad visited the Laboratory of Macromolecular and Organic Chemistry of Leuven over the years and have several post-doctoral researches spent one or two years to work under Professor Smets' guidance, but also over the years, Professor Smets' honours have accumulated to an impressive list of awards, honorary degrees and nominations as a member of different organisations and societies including that of being President of IUPAC, 1977-1979.

Besides his activities as the leader of a large research group he has been an inspiring and appreciated teacher since 1944. Many of his former students are now distinguished by their own work initiated under his guidance in Leuven. Many of them hold now Professorial positions in various Belgian as well as foreign universities.

So far we only the professional activities of Professor Smets have been mentioned. However, despite his many trips abroad, on which he was often been accompanied by the equally well known Mrs. Smets, he was a family man, father of five children, also the spiritual father of a countless number of students who for a long time have been able to count on him for advice and support.

After Professor Smets death a Georges Smets Chair was created jointly by his colleagues of the Katholieke Universiteit Leuven and the Université Catholique de Louvain. Each year a lecturer of world renown is appointed to give lectures in both universities.

Bibliography

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