

# Macromolecules

Volume 29, Number 3

January 29, 1996

© Copyright 1996 by the American Chemical Society



Professor Viktor N. Tsvetkov

In February 1995, the polymer community celebrated the 85th birthday and 65th year of scientific and pedagogical activity of the world known Russian polymer physicist, and member of the Russian Academy of Sciences, Professor Victor Nikolaevich Tsvetkov.

After graduation from Leningrad Pedagogical Institute in 1931, V. N. Tsvetkov enrolled as a Ph.D. student at Leningrad University, graduating from there in 1935. Since then, Viktor N. Tsvetkov has worked at the University and advanced to the rank of full professor. At present, he is at the Institute of Macromolecular Compounds of the Russian Academy of Sciences where he directs a scientific research group.

A new scientific field arose in polymer science under the leadership of V. N. Tsvetkov: molecular polymer physics, the conformational and structural study of macromolecules. Tsvetkov developed theories of flow birefringence in solutions of flexible- and rigid-chain polymers taking into account optical effects of the microscopic and overall macromolecular conformations, optical anisotropy, and the electrooptical properties of wormlike chains. He clarified the nature of the equilibrium and kinetic flexibility of various classes of polymer molecules. He also formulated the concept of intramolecular polymer compounds and with his pupils and colleagues developed highly sensitive original instrumentation and methods for studying the hydrodynamic and optical properties of macromolecules in solutions.

In his early papers Tsvetkov formulated many fundamental concepts of the modern physics of liquid crystals. The nature of the orienting effect of electromagnetic fields on the liquid crystalline samples was explained. The phenomenon of dynamic light scattering in liquid crystals was interpreted and an original method utilizing a rotating magnetic field for liquid crystal investigations was developed. Tsvetkov developed a general theory of the mesomorphic state, introduced a measure of the long-range orientational order in liquid crystals, and developed experimental methods for measuring this important characteristic of the mesophase.

At present, Tsvetkov is extending his original investigations of the structural, dynamic, and electrooptical properties of low molecular weight liquid crystals to the region of high molecular mass thermotropic nematics. His recent results have led to several new concepts describing the relationship between the polar intramolecular and orientational intermolecular orders of mesogenic macromolecules in solutions and nematic melts.

The results of V. N. Tsvetkov's research have been presented in two monographs (V. N. Tsvetkov, V. E. Eskin, and S. Ya. Frenkel) *"Structure of Macromolecules in Solutions"*, National Lending Library for Science, Boston Spa, Yorkshire, England (1971), (V. N. Tsvetkov)

*"Rigid-chain Polymers"*, Consultants Bureau, NY (1989), and more than 500 scientific papers and reviews.

Professor V. N. Tsvetkov organized the first department of polymers physics in Russia at St. Petersburg University and also the laboratory of molecular hydrodynamics and optics at the Institute of Macromolecular Compounds of the Russian Academy of Sciences.

He has been an active plenary and invited lecturer at various IUPAC Macromolecular Symposia and his contributions to the physics of macromolecules are widely recognized by the international polymer community.

**Nikolai A. Platé**

*Institute of Petrochemical Synthesis  
Russian Academy of Sciences  
29, Leninsky Prospekt  
Moscow*

**Irina N. Shtennikova**

*Institute of Macromolecular Compounds  
Russian Academy of Sciences  
31, Bolshoy Prospekt  
St. Petersburg*

*Received August 16, 1995*

MA951197W