

Obituary

Obituary for Victor M. Starov

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Victor Mikhailovich Starov was born on 14 June 1946, in Temryuk, at the Sea of Azov in Russia, and passed away on 10 August 2026, in Moscow, Russia.

After finishing high school in Stavropol, he studied Mathematics and Mechanics at Moscow State University and graduated in 1969. Victor was awarded a PhD in 1973 by the USSR Academy of Sciences for his thesis entitled “Capillary Hysteresis and the Structure of Isotropic Porous Media” and a Doctor of Sciences (equivalent to habilitation) in 1981 by Leningrad State University for his thesis entitled “Equilibrium and Kinetics of Thin Liquid Layers”. In 1983, he was appointed Head of the Department of Pure and Applied Mathematics at the Moscow State University of Food Production, where, in addition to teaching, he led a strong scientific team (A.N. Filippov, V.V. Kalinin, V.I. Ivanov, S.I. Vasin, and Yu.E. Solomentsev). In Moscow, he successfully cooperated with a number of famous researchers, including Boris V. Derjaguin, Stanislav S. Dukhin, and Nikolai V. Churaev. In particular, his close collaboration with Nikolai Churaev started in 1974 and lasted until 2005. During this period of time, many joint works were published on fundamental aspects of wetting and spreading phenomena. After the collapse of the Soviet Union, Victor Starov worked at various places in the world as a Visiting Professor—for example, at the Department of Chemical Engineering at the University of Texas at Austin (USA), at the Laboratoire de Genie Chimique CNRS Toulouse (France), at the Instituto Pluridisciplinar UCM Madrid (Spain), and at the University of Swansea (UK). In 1999, he began working as a Professor at the Department of Chemical Engineering, Loughborough University (UK), where he was elected Fellow of the Royal Society of Chemistry (UK) in 2007.



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The spectrum of topics covered by Victor's scientific work is very broad, and his cooperators came from almost all continents. With his work, he has significantly contributed to topics that include the impact of surface forces on both equilibrium and dynamic wetting phenomena, disjoining pressure, spreading, and imbibition over porous substrates, the influence of surfactants on wetting, spreading, and evaporation, superspreading, dynamic contact angle, membrane separation and filtration, electrokinetic and electrophoresis, and drainage in and stability of foams and emulsions—and this long list does not include all of his important contributions.

He visited many places during his time at the Loughborough University, where he established a globally renowned school of interfacial dynamics. His most frequent visits were to the Instituto Pluridisciplinar at the Universidad Complutense de Madrid, where he was involved in an extremely successful collaboration with Manuel Velarde, Ramon Rubio, Francisco Ortega, and Eduardo Guzman. His masterpiece, as mentioned many times by Victor himself, was the book on "Wetting and Spreading Dynamics" [1]. The first edition was published in 2007 in collaboration with Manuel Velarde and Clayton Radke, while the second edition [2] was published in 2019 as collaborative work with Manuel Velarde, containing two new chapters and significant extensions. This book is a valuable reference for all colleagues in academia and industry whose work addresses the wetting and spreading of solid surfaces by liquids and, in particular, surfactant solutions.

Several works from the long list of Victor Starov's scientific achievements have been summarized in earlier publications, most recently in the Honorary Note and Special Issue dedicated to his 70th [3] and 75th [4] birthdays. To extend this list of important examples, we want to mention here some of his most frequently cited scientific publications.

The review article [5] discussing the dynamics of particle-laden interfaces, in presence and absence of surfactants, has been cited very frequently, in particular regarding the Brownian motion of particles used to probe surface shear viscoelasticity.

Another highly appreciated overview article was dedicated to the processes of wetting dynamics observed in industrial and medical applications [6]. In particular, the impact of surfactants on the wetting of smooth and porous surfaces was analyzed. This work provides a better understanding of the superspreading of trisiloxanes on hydrophobic surfaces, a phenomenon that is still vividly being discussed.

One of Victor Starov's early publications, performed with two pioneers of colloid science, Churaev and Derjaguin, on the transition zone between a flat film and its adjacent bulk phase and the role of line tension in these situations still represents an important aspect in actual drop dynamics [7]. The physical basis of this work has been continuously cited over almost half a century.

The spreading of small liquid drops over solid, soft, or porous surfaces is one of the most significant scientific themes in Victor's work that is still highly relevant today. Drop motion over porous layers was investigated from both a theoretical and experimental viewpoint in [8,9].

A completely different topic concerned Victor's work on ultrafiltration membranes. In these studies, using some fundamental knowledge on the processing of textiles, the authors [10] demonstrated how a particular modification of membranes allows for the ultrafiltration of wastewater from textile industry, in particular for the removal of dyes.

Another very frequently cited work on spreading over low-energy surfaces by aqueous surfactant solutions can be mentioned here as important contribution by Victor in collaboration with Natalia Ivanova [11]. In this overview, particular attention is paid to the spreading and wetting processes of nonionic hydrocarbon and organosilicon surfactants.

It is, of course, obvious that review articles are cited much more often than original scientific papers. Victor Starov published a number of very critical overview articles

representing important perspectives. One of these was dedicated to the evaporation of liquid droplets positioned on solid substrates, a topic he was also involved in for quite some time.

For example, in ref. [12], for example, the limits of existing diffusion theories and their applicability to complex fluids are critically analyzed. The review clarifies the role of surfactants and suspended particles during droplet evaporation and demonstrates that their influence on overall evaporation dynamics is often secondary. As a result, the classical diffusion-controlled model remains applicable to a surprisingly broad range of systems, making this work an important reference for researchers studying evaporating sessile droplets.

From the very beginning of his scientific work, Prof. Starov was interested in electric interfacial phenomena. It is no wonder that his studies on the diffusion permeability of bi-layer electrodialysis membranes were very successful. His paper on homogeneous porous membranes [13] was highly influential. A theory on the reverse osmosis of multicomponent electrolyte solutions was also developed and verified using available experimental data [14]. Victor developed a theory on the formation and compressibility of cake layers formed on membrane surfaces during ultra- and microfiltration based on colloidal interactions between particles and membranes [15]. He and his coauthors suggested a new theory of the sieve mechanism of microfiltration that was experimentally verified [16]. A new phenomenon of electrolyte concentration in the permeate during ultrafiltration in the presence of polyelectrolytes in the feed solution was predicted and verified.

Victor Starov contributed significantly to a better understanding of the role of surface forces in the wetting of deformable substrates [17]. This topic has been the focus of great interest in the scientific community in recent decades. Together with his colleagues, he critically analyzed and reviewed recent achievements in the field of static and dynamic wetting of soft substrates [18].

Professor Starov was very interested in the comprehensive education of the new generation of colloid and interface scientists. He was a mentor to many PhD students and was also intensively involved in multinational training network programs in the European Union. Many of these former young career scientists have become internationally recognized experts across the world, not only in Europe but also in the USA, Asia, and Africa.

Professor Victor Starov served on the editorial boards of several leading journals, including the *Journal of Colloid and Interface Science*, *Kolloidnyi Zhurnal (Colloid Journal)*, *Advances in Colloid and Interface Science*, *Current Opinion in Colloid and Interface Science*, *Desalination*, *Membranes*, *Colloid and Interface Science Communications*, *Journal of Membrane Science*, and *Membranes and Membrane Technologies*. For the journal *Colloids and Interfaces*, he was Editorial Board Member and Associate Editor until the end of his scientific activities. He co-authored eleven papers in the journal and managed five Special Issues as co-editor.

Victor Starov actively participated in numerous international conferences, including the Conference of the European Colloid & Interface Society (ECIS), the Bubble and Drop Conferences, and the Conference of the International Marangoni Association, at which he made many contributions through his presentations and very active discussions. His wife, Nadezhda, routinely accompanied him at these meetings. When she passed away in 2019, Victor unfortunately stopped attending these conferences.

There is much more we could say about Victor Starov, a colleague and friend for many of us around the world. However, we would like to take this opportunity to express how honored we are to have had the chance to work with him directly. We are very confident about the preservation of his scientific legacy. The global colloid and interface science community mourns the painful loss of Victor M. Starov.

Conflicts of Interest: The authors declare no conflict of interest.

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