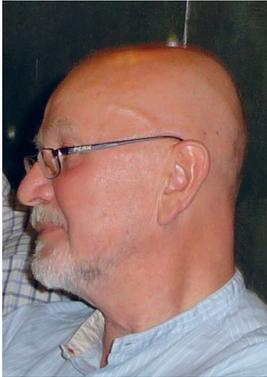


In memoriam

Sergej Sergejevich Zilitinkevich (4.1936 - 2.2021)



A guru of turbulence, and more generally, in the area of classical, geophysical and astrophysical fluid dynamics, passed away earlier this year, dear scientist, teacher and friend, Sergej Zilitinkevich.

It is inconceivable and perhaps even inappropriate to try to list here his almost countless achievements, findings and contributions to fluid dynamics, air-sea interaction, climate and general circulation of planets' atmospheres, oceanography, hydrology and more. Sergej has shaped up hundreds of PhD candidates, postdocs and already formed researchers. A finer but necessarily still fragmented-in-time overview of his accomplishments may be found in Djolov (2007). Sergej collaborated with thousands of scientists including A. S. Monin, A. M. Yaglom, A. M. Obukhov, J. W. Deardorff, J. C. R. Hunt, etc. Virtually all numerical weather and climate models use certain form(s) of his turbulence parameterization schemes, even some astrophysical schemes deploy Sergej's formulations. For example, he made major advancements of higher-order turbulence parameterization schemes including the concepts of strong and weak mixing in stratified turbulence (Zilitinkevich et al., 2008), total turbulence energy (Mauritsen et al., 2007; Zilitinkevich et al., 2013), improved similarity theory (Zilitinkevich and Esau, 2007), etc.; hence, today's understanding of the nature, theory and modeling of planetary boundary layers would not be possible without Sergej (*e.g.*, Baklanov et al., 2011).

Sergej's career is largely related to the ex-USSR (especially Russia and Ukraine), Germany and Scandinavia. He continued and advanced great accomplishments of the pertaining schools of turbulence and planetary boundary layers (after A. N. Kolmogorov etc., L. von Prandtl and T. von Karman, V. W. Ekman and C. G. Rossby). He held several professorships; the last prestige one was in Helsinki where he got a European Marie Curie Chair in Boundary Layer Meteorology. Before that, he was professor at Uppsala University. Much before that, he suffered a great hunger during the World War II in St. Petersburg, Leningrad at that time. When he was only 27 years old, he already became a boss for almost

50 scientists in a prestigious institute in Leningrad; he also spent several years in a labor camp during 1980's. In other words, a heavy, rich yet hard lifetime.

We met first time in 1994 when he gave a seminar on larger, semi-organized and coexisting, smaller and more random turbulent structures at the Institute of Meteorology in Uppsala (after the Bergen's, the second oldest institute of meteorology in the world). Sergej moved from Germany to Uppsala where he became professor in 1997, when I was just about to move to the Institute of Meteorology in Stockholm. Because of him and other few good friends, I remained living in Uppsala and working there one day per week. That was a blooming period scientifically and privately. We were visiting each other, cooking and discussing science, especially hot topics in turbulence, boundary layers and gravity waves; with us was often Leif Enger, an exquisite numerical modeler. We competed friendly in cooking. Sergej was the best in making salads, I would seldom win, yet Croatian cream dry-mushroom soups were highly ranked. Those who know Leif, may guess well that he was the overall chef winner. Besides frequent and fully international seminars, workshops, PhD committees in both Uppsala and Stockholm, we managed to keep close human relations. Sergej was almost always calculating something on paper, or typing, or drawing sketches. On seminars, he would follow presentations and then, all of a sudden, he would either have a short cat-nap, or restlessly scribble new ideas about turbulence, waves and more; and then, at the end, he would typically ask deepest and hardest questions.

Sergej's mother and only a few closest friends called him "Serjoža". I will never forget a small party at my attic humble place, they called it 'a cozy one'. After a feast, later on cognac, Sergej started scribbling, the others were yawning, but his mother who was already about 85, said to me: "Branko let's go out to a disco-club, the others are so boring!". After a short argument with Serjoža, he and his mom went home after midnight. Sergej visited Croatia on several occasions including conferences and his birthdays; he loved the Adriatic coast, Dubrovnik and other ancient cities. He was also a guest editor to "Geofizika" journal; thus, once more, the Editorial board expresses its gratitude to Sergej Zilitinkevich.

Numerous seminars, workshops and conference sessions are being planned now, as well as a special peer-review journal issue, in Sergej's honor and his legacy. He is greatly missed by his family, friends and already by the scientific community from all over the world.

Branko Grisogono

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