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A distinguished mathematical physicist Boris S. Pavlov

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Professor Boris Pavlov passed away on 30 January 2016.

Boris Pavlov was born in Kronshtadt, Russia, 27 July 1936. He graduated from Physical faculty of Leningrad State University in 1958 and continued to work at the Department of Mathematical Physics. His PhD thesis (1964, Supervisor – M. S. Birman) was devoted to investigation the spectrum of non-self-adjoint operator $-y'' + qy$. Ten years later, his PhD Thesis was followed by a Doctoral dissertation in Mathematical Analysis: "Dilation Theory and Spectral Analysis of Nonselfadjoint Differential Operators". He was a Vice-rector (Research) of Leningrad University [1978–1981 and at the same time [1978–1982], he had a Chair of Mathematical Analysis at the Faculty of Mathematics and Mechanics of Leningrad State University. Later [1982–1995] he worked as a Professor at the department of Higher Mathematics and Mathematical Physics, Physics Faculty. The year 1995 was a branching point for him. He held a Personal Chair in Pure Mathematics at the University of Auckland from 1994 to 2007, however, he did not break his connections with Russia. From 1995 he was a Chief of Complex Systems Theory Laboratory at Physical Faculty. Since 2009, he was a member of the then newly formed Institute for Advanced Study at Massey University Albany.

B. S. Pavlov was well known for his high level of scholarship in diverse areas of analysis. He became a Fellow of the Royal Society of New Zealand in 2004 and a member of the Russian Academy of Natural Sciences in 2010. B. S. Pavlov leaves behind his wife Irina, a daughter and a son.

The highest scientific achievements of B. S. Pavlov (as he himself felt) are:

- Spectral theory of singular differential non-selfadjoint operators, 1962.
- Riesz-basis property of exponentials on a finite interval, 1979.
- Operator-theory interpretation of critical zeros of the Riemann zeta-function, 1972.
- Symmetric Functional Model for dissipative operators, 1979.
- Zero-range potentials with inner structure and solvable models, 1984.
- Theory of the shift operator on a Riemann surface, jointly with S. Fedorov. 1987.
- Modified analytic perturbation procedure ("Kick-start") for operators with eigenvalues embedded into continuous spectrum, 2005.
- Fitting of zero-range solvable model of a quantum network based on rational approximation of the Dirichle-to-Neumann map of the original Hamiltonian, 2007.
- Fitted solvable model of the stressed tectonic plate, in connection with prediction of powerful earthquakes, jointly with L. Petrova, 2008.
- Quasi-relativistic dispersion and high mobility of electrons in Si-B sandwich structures, jointly with N. Bagraev, 2009.
- Theoretical interpretation of the low-threshold field emission from carbon nano-clusters, jointly with Y. Fursey and A. Yafyasov, 2010.

He supervised more than 30 students. Among them were:

1. V. L. Oleinik, Master,PhD student 1965–1971 (Associate Professor, St. Petersburg University)

2. S. V. Petras, Master,PhD student 1965–1970 (Associate Professor, St. Petersburg University of Economics)

3. M. G. Suturin, Master,PhD student 1966–1971 (Associate Professor, St. Petersburg Institute for Airspace devices)

4. S. N. Naboko, Master, PhD student 1969–1976 (Full Professor, St. Petersburg University)

5. S. A. Avdonin, Master,PhD student 1969–1980 (Full Professor, the Univ. of Fairbancs, Alaska)

6. M. A.Shubova, Master,PhD student 1969–1982 (Full Professor, the University of New Hampshire, USA)

7. S. A. Ivanov, Master, PhD student 1972–1978 (Research worker at the Institute of Terrestrial Magnetism RAS, St. Petersburg)

8. I. Yu. Popov, Master, PhD student 1974–1978 (full Professor, Chair of Higher Mathematics, ITMO University, St. Petersburg)

9. Yu. A. Kuperin, Master student 1975–1978 (Doctor of Science, Full Professor, St. Petersburg University)

10. Y. E. Karpeshina, Master,PhD student 1975–1985 (Full Professor, Birmingham University, Alabama, USA)

11. K. A. Makarov, Master, PhD student 1976–1982 (Full professor, Univ. Missouri-Columbia)

12. S. E. Cheremshantsev, Master, PhD student 1976–1982 (Full Professor, Chair of Higher Mathematics, Orlean University, France)

13. A. V. Rybkin, Master, PhD student 1977–1982 (Full Professor, Univ. of Fairbancs, Alaska)

14. A. V. Strepetov, Master, PhD student 1978–1986 (St. Petersburg Institute of Airspace devices, St. Petersburg, Russia)

15. M. D. Faddeev, PhD student 1982–1985. (Associate Professor in St. Petersburg University)

16. P. B. Kurasov, Master, PhD student 1981–1987 (Associate Professor, Doctor of science, now in Lund University, Sweden)

17. A. E. Ryzhkov, Master, PhD student 1974–1980 (Associate Professor, ITMO University, St. Petersburg)

18. V. A. Evstratov, Master, PhD student 1984–1992 (Assistant Professor St. Petersbufg University till 1994. Now in business)

19. A. A. Shushkov, PhD student 1984–1987 (Assistant Professor St. Petersbufg University till 1991, now somewhere in Canada)

20. N. I. Gerasimenko, PhD student 1985–1987 (Associate Professor at the Higher Military School, St. Petersburg)

21. M. M. Pankratov, Master, PhD student 1987–1991 (Insurance Company, Switzerland.)

22. S. V. Frolov, Master, PhD student 1988–1993 (Doctor of Technology, Full Professor, ITMO University, St.Petersburg)

23. A. A. Pokrovski, Master, PhD student 1990–1995 (Research worker at the Institute for Physics of St. Petersburg University, St. Petersburg, Russia)

24. R. Killip, Master, PhD student, the Univ of Auckland 1994–1996 (Associate Professor, UCLA, Los-Angeles, USA)

25. J. Mac-Cormick, Master student, the Univ. of Auckland 1994–1995 (Research worker in Computer Design Laboratory UCLA)

26. A. Kraegeloh, Master thesis, the Univ. of Auckland 1995–1997 (Insurance company, Germany)

27. M. Harmer, Master,PhD student Auckland 1996–2000 (Post Doc., Prague)

28. A. B. Mikhailova, Master student 2000–2001, St-Petersburg Univ. (Research worker at the Institute for Physics of St. Petersburg University)

29. S. Mau, Master student, 1999–2002, the Univ of Auckland (PhD student, New York Univ., USA)

30. S. Marshall, Master student, the Univ of Auckland 2004–2006 (PhD student at Princeton)

31. S. Dillon, Master thesis, the Univ of Auckland, 2005–2007 (PhD at Massey Uni. NZ)

The scientific interests of B. S. Pavlov were very wide, ranging from quantum physics to earthquakes. But were not his only interests. He liked kayak travels and alpine skiing. Everybody knew him as a good painter. In this article, you can see his self-portrait. For his students, if they had a problem, they could visit Boris Sergeevich, as his door was always open and he would help them using all his abilities and talents. He was kind and wonderful person, a teacher in science and in life. We will never forget him.

To show particular remarkable features of B.S.Pavlov, we include here a few memories from his former students.

A. Kiselev. I had the good fortune to study with Boris Sergeevich Pavlov for several years after I transferred from LITMO to SPbGU in 1989. Boris Sergeevich had set my early direction in mathematics, suggesting problems to work on and topics to study. However, he did much more than that; he truly cared about his students, and provided support and advice not only professionally but in other aspects of life. More than anything, though, he influenced me through his personal example of doing mathematics. For him, mathematics was something to live and breathe, something to enjoy with friends and students. Boris Sergeevich treated his classes as performances, including a bit of occasional improvisation, making those instances some of the most inspiring moments I saw. He liked to say that mathematics is an experimental science. This way of thinking about mathematics – that one should build models, experiments, tirelessly explore the entire landscape surrounding the problem of interest – has become part of my mathematical DNA.

Boris Sergeevich was very generous and gentle with me, but he did not hesitate to provide precise feedback when something needed fixing. I remember my first ever presentation of research paper which I read in order to start working on my own problem. Within five minutes of the start Boris Sergeevich yawned and stopped me and explained that he does not need me to faithfully reproduce all the details. I am not at an exam now – what is the idea? This way my boring report quickly turned into a lively discussion. I am afraid that I could not tell the main idea, however Boris Sergeevich did not let us fail and helped me formulate it in the end (I am pretty sure now he figured it out long before I did but made me discover it myself). Every one of such interactions has been priceless for me. The friendly, supportive and wise guidance of Boris Sergeevich came at a key time in my education and truly helped me grow as a mathematician.

P. Kurasov. I would like to mention B. S. Pavlov's precepts for young scientists:

Do other things than other researchers;

Use other ways than other researchers;

Look sharp during your research;

Read, but do not read much, otherwise you will not be read;

Do not disregard negative results;

Do not "cram your results into explanation" before you have checked it carefully.

This article bibliography contains the papers of B. S. Pavlov in Refereed Journals.

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