

## **Niklaus Wirth – the honorary doctor of *Saint-Petersburg State University of Information Technologies, Mechanics and Optics***

The arrival of Niklaus Wirth is timed to the 250th anniversary of *Moscow State University* and to the 150th anniversary of the *Swiss ETH (Eidgenoessische Technische Hochschule)* – the *Polytechnic Academy*, located in Zurich.

The visit started in *St. Petersburg*. Our city has long-lasting relationships with Switzerland. Leonard Euler, the great European mathematician, had been working many years in Saint Petersburg, and was buried in the necropolis of *The Alexander Nevsky Lavra*. Niklaus Wirth designed his first programming language in 1963 and named it “Euler”. The *International Mathematic Euler Institute* is situated and operates in Saint Petersburg.

Professor N. Wirth's visit as well as the visit of his colleague professor Juerg Gutknecht was organized by the "Programming Technologies" laboratory, set up by *Saint Petersburg State University of Information Technologies, Mechanics and Optics (SPSU ITMO)* and Saint Petersburg's department of the *Borland Corporation*.

N. Wirth is highly respected worldwide for many of his scientific and programming achievements, but one of them should be stressed here – *Pascal* programming language. *Pascal* was invented by Niklaus Wirth in 1970. A large part of *Borland* business is based on *Pascal* and its variations. It is also the language which is studied by nearly all students of *Saint Petersburg State University of Fine Mechanics and Optics* and other technical universities in Russia.

The teams of *SPSU ITMO* prefer to use the *Pascal* Language at the international collegiate programming contests, organized by *ACM (Association for Computing Machinery)*. *SPSU ITMO* is rated second among other universities, which take part in these prestigious contests, according to the results of the latest decade (*Bogatyrev R. Not gonna get us? The Russia's Triumph and the USA's failure //PC World. 2005, № 5, pp. 60-67, [http://is.ifmo.ru/belletristic/\\_acm2005.pdf](http://is.ifmo.ru/belletristic/_acm2005.pdf)*). In the year 2004 the *ITMO* team became the world champion (*Bogatyrev R. To the History of the International Collegiate Contests //PC World. 2004, № 7, pp. 48-51, [http://is.ifmo.ru/belletristic/\\_acmhlist.pdf](http://is.ifmo.ru/belletristic/_acmhlist.pdf)*). In the year 2000 and 2001 the *SPSU (Saint-Petersburg State University)* team was the world champion and it rates third in the world within the latest decade. There is every reason to believe, that the best programmers in Russia, are taught now in *Saint Petersburg*, rather than in *Moscow* or *Novosibirsk*, as it was a couple of years ago.

As it was mentioned before the *Pascal* language means a lot for the *Borland Corporation*. Almost any programmer in the world has heard of such corporation software products as *Turbo Pascal, Borland Pascal and Delphi*. The first release of *Delphi* appeared more than ten years ago and is still being developed. According to the annual survey of the "PC World" magazine readers, *Delphi* is one of the most popular software products in Russia and holds for the last couple of years the title "Best Product of the Year".

*SPSU ITMO* and *Borland's Corporation* pay a lot of attention to the school education, so the visit of N. Wirth to Saint Petersburg started in the physical mathematical lyceum № 239 (former school № 239) on September 13, 2005. The lyceum was called the best school of the world by George Sores. Among the graduates of this school are A.V. Ivanov (the head of the Saint-Petersburg's department of *Borland*) professor V.G. Parfenov (the dean of the *Information Technologies & Programming* faculty of the *SPSU ITMO*, the laureate of the President's of Russian Federation Award in the field of education), two of our world's champions – S. Orshansky and D. Pavlov, and also all the world's champions in programming from *Saint-Petersburg* – A. Lopatin, N. Durov, O. Yeterevsky and V. Petrov. Besides approximately one half of the students, who study at *Computer Technologies department* are the graduates of the lyceum.

The meeting with N. Wirth was held in the morning, in the assembly hall of the school. There were so many students that "only chandeliers were not sat on". Everyone stood up and applauded, when professor Wirth entered the assembly hall. Professor Wirth spent more than 15

minutes after the meeting for signing Russian copies of his books. It was pretty difficult for the staff to evacuate professor from the school.



Afterwards, at 14:30 professor Wirth and professor Gutknecht arrived to *SPSU ITMO*, where the meeting of the *Academic Council* took place. At this meeting Wirth was presented with a diploma and the mantle of the honorary doctor of the *SPSU ITMO*. The members of our *Academic Council* voted for granting N.Wirth this title on June 28, 2005 after my presentation.

At first the University vice-president professor Y.N. Kolesnikov (President V.N. Vasiljev was absent during the meeting because of his visit to *Armenia* as a member of a government delegation) introduced to our Swiss guests the following persons: A.I. Ivanov, V.G. Parfenov and also

- V.L. Makarov, the president of the *RUSSOFT* organization, which also includes dozens of programming association of *CIS (Commonwealth of Independent States)*;
- T.A. Pavlovskaya and A. A. Shalyto, the professors of *SPSU ITMO*;
- A.S. Stankevitch, the assistant at the *Computer Technologies* department, the laureate of the Russian Federation President's Award in the field of education, that was given to him for training *SPSU ITMO teams* and his own participation in the international programming contests;
- P. Mavrin, the 2004 world champion, the 2005 golden medalist, the laureate of the Russian Federation President's Award that was given to him as well as to D. Pavlov for their brilliant achievements in the international Olympiads in programming among the school students.

After that, a couple of pictures were made, professor Wirth signed books for the guests, and finally everyone moved to the hall room. There were a lot of people. We were really surprised. The only time I saw so many people in the university hall room was during 1960s when Vladimir Vysotsky visited *LETI (Leningrad Electro Technical Institution)* where I was studying at that moment. And again, as it had been in the lyceum that morning, when Wirth

appeared on the stage, everyone was standing and applauding.

There were a lot of students (about 700 of them) not only from our University but also from many other St. Petersburg Universities. All of the chairs were occupied, students and other visitors were standing in the aisles and even behind the stage. Many of them were given the invitations during the courses of the *Borland Academy*, which had been founded in *SPSU ITMO*. The purpose of this academy is to extend the University curriculum with the courses from the *Software Engineering Curriculum*, – the international educational standard in the field of Software design.

The other reason of the large amount of visitors, was that the information of professor's Wirth visit had been spread through the *St. Petersburg Mathematic Society*, the *RUSSOFT Association* and a couple of Russian sites like "The Kingdom of Delphi". Of course, there were posters in St. Petersburg's leading technical Universities.

The meeting in the Academy Hall started with a brief complimentary speech by Prof. Y.L. Kolesnikov. It was followed by a hymn of our University. After that I started the report about the life and work of N. Wirth.

I started my speech with the explanation to the members of *Academic Council* and to those who might not know who N. Wirth really is by comparing his contribution to the field of information technologies to the paintings of the Renaissance painter Raphael. However, I think, that there were much greater titans in the history of painting than in the history of information technologies. One can also learn about that from the portrait gallery of the founders of information technologies published in this year's "Information Technologies" newspaper for teachers. Wirth's portrait is present there too.

After that I briefly spoke about the life stages of professor Wirth. I got the information from various articles by R. Bogatyrev.

Wirth was born on February 15, 1934 in the suburbs of Zurich. In 1954 he entered Zurich *ETH*, where they say 30 *Nobel Prize* Winners studied and worked. It's known for sure that such great scientists as A. Einstein and J. von Neiman studied in this University. In 1958 N. Wirth got the Bachelor's Degree in Electrotechnics. In 1960 – he got a Master's Degree in the Laval University of Quebec (Canada). In 1963 Wirth got his first important achievement in information technologies: on the basis of the *Algol* language he designed the *Euler* language, which became his main PhD thesis in the *University of California in Berkley*. After that he was invited to the *Algol* standardization *IFIP* committee. From 1963 to 1967 N. Wirth was an associate professor in *Stanford University* in the *USA*. From 1968 – he was a professor of computer science in *ETH*. From 1982 to 1984 and from 1988 to 1990 he was the head of the computer science department in *ETH*. In 1990 he became the head of *Institute of Computer Systems* in *ETH*. On April 1, 1999 he retired at the age of 65.

Here are the basic stages of his achievements in the field of information technologies and computer sciences:

- 1970 – the Pascal Language – the 1st language in the world, where the concepts of structural programming were fully implemented;
- 1971 – one of the primary articles on the structural programming "Program Development by Stepwise Refinement";
- 1973 – the prototype of the virtual machine, used to port the Pascal Language to different platforms;
- 1976 – the Modula Language. The basics of multiprogramming were implemented in it;
- 1979 – the Modula-2 Language, with the support for the modular approach and quasi parallel processes;
- 1980 – the Lilith computer, with the support for the Modula-2 Language;
- 1988 – the Oberon Language; based on expanded notation.
- 1996 – the Lola Language for the embedded schemes programming.

N. Wirth moves against the flow – as all of the programming languages become more difficult, his languages are becoming simpler: the Pascal Language description took about 50

pages, Modula description – about 40 and Oberon description – only 16... We thank a lot Wirth for that!

Professor N. Wirth for his achievements was granted Turing Award. Turing award is granted to the people, who have outstanding achievements in the field of information technologies (Lectures of the *Turing* laureates from 1966 to 1985. "Mir", 1993). In 1988 he was also awarded the *IEEE Computer Pioneer Prize*, which was also given to the Soviet scientists V.M. Glushkov, S.A. Lebedev and A.A. Lyapunov among other 55 laureates (*Shalyto A.A.* We had a Great Epoch // Information Control systems. 2003. № 1, pp. 52-56).

N. Wirth is an honorary doctor of the nine Universities of the world, including Berkley University in California, where he used to work. *SPSU ITMO* is a second Russian University that gives such rank to N. Wirth. In 1996 he became the honorary doctor of the *Novosibirsk State University*.

The books by N. Wirth have been published many times in the *USSR* and *Russia*. Here are some of them:

- Systematical Programming. Introduction. M.: Mir, 1977;
- *Pascal*. The manual for developer and the description of the language. M.: Finance and Statistics, 1982 (with co-author K. Yensen);
- Algorithms + Data Structures = Programs. M.: Mir, 1985;
- Programming in *Modula-2*. M.: Mir, 1987;
- Algorithms & Data Structures. S. Pb.: Nevsky Dialect, 2001.

"PC World" magazine, 2005, № 9 came out with a CD, dedicated to the arrival of N. Wirth. The CD is called "From Pascal to Oberon". There are 50 thousands copies of the disc which makes Wirth's works available all around the country. There is also an article on this CD, that is written by S. Orshansky (the 3rd member of the *ITMO* team) whom I had asked him to do it. This article is called "On the solving of the ACM ICPC Olympiad problems".



With this I finished my speech and A.V. Ivanov started his talk. He described in details the role of N. Wirth and his languages in the success of *Borland* corporation.

Afterwards V.L. Makarov made his speech, in which he marked the importance of today's event for everyone, who was present in the Assembly Hall, especially for the young students. whose task is to make our country the leader in the field of programming.

V.G. Parfenov thanked professor N. Wirth for *Pascal* language which became an overwhelming force in the hands of the *ITMO* students during the international collegiate programming contests.

Wirth was then presented with a T-shirt by P. Mavrin and D. Pavlov. This T-shirt is worn by the students on the World Finals of the programming contests.

And finally Y.L. Kolesnikov presented professor Wirth with the diploma and the mantle of the honorary doctor of the *SPSU ITMO*. You are unlikely to have seen so many students taking pictures simultaneously!

After that professor Wirth started his speech and read 2 pages... in Russian, telling how difficult it had been to learn this language.

I should mention, that the knowledge of the Russian language seems to be essential for professors of *ETH*. A new *ETH* professor, Bertrand Meyer, the designer of the *Eiffel* language knows Russian perfectly.

Then there was a honorary doctor's lecture by Wirth that he made in English. The auditory didn't need the translation, everyone could understand it.

After the lecture many students got Wirth's autographs on his books.

That day the famous person on the stage had another famous person among the audience - a *Russian Academy of Sciences* correspondent-member Yuriy Vladimirovitch Matiyasevich, also a 239-school graduate. Being a postgraduate of the *Leningrad State University* he managed to solve the 10th problem of *Gilbert*.

The ceremony was over, but N. Wirth went on working: he and professor Gutknecht took part in a press-conference. I asked them: "Why the language of Oberon being so good is not so famous?" Professor Gutknecht ironically answered: "People get what they deserve.", and offered a prize to anyone who can make up a task which can not be effectively solved by this language. After the press-conference I told N. Wirth and Y. Gutknecht about the automata-based approach in programming that I had offered. But it is a different story

The meeting was almost finished when a big fragment of it was shown on the *NTV* channel: N. Wirth's visit is a big social event in the life of our country.

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