

Rolf Jeltsch: A visionary in service of the mathematical community

Volker Mehrmann

The mathematical community in Europe and all over the world has lost one of the most prominent representatives. Rolf Jeltsch (1945–2024), former president of *Leonhard Euler Center*, *Swiss Mathematical Society (SMS)*, *International Association of Applied Mathematics and Mechanics (GAMM)*, *European Mathematical Society (EMS)* and the *International Council for Industrial and Applied Mathematics (ICIAM)*, passed away on 28 June 2024.

It is extremely hard to describe the personality and life-time achievements of Rolf Jeltsch as he deserves. Let me start with his service for the community, which is best described by the statement:

In permanent service for the mathematical community locally, in Europe and worldwide, with particular emphasis on the unity of mathematics.

While in many parts of the world there is a strong division between ‘pure’ and ‘applied mathematics,’ in some countries even with different mathematical societies, Rolf Jeltsch was always convinced that this division is harmful for the mathematical community and its global position in science and education. Such tendencies to split were also present in the global European mathematical community in the 1990s. Rolf always opposed such a split and with his leadership strength, he was certainly an ideal person to make sure that such a split did not happen. With this in mind, he was asked to become president of EMS. After a first hesitation, he accepted. He initiated a meeting of the presidents of the member societies that led to the 2001 Berlingen Declaration.¹ The declaration states a list of criteria for the future development of the EMS, and then during his presidency Rolf worked extremely hard for these criteria to be implemented.

Let me summarize a few of the points from the Berlingen Declaration: Pure and applied mathematics should both be represented well in the bodies and publications of the EMS. The EMS should invest in the future of the next generation of mathematicians, with its summer school program, and with an increased activity towards public awareness as well as mathematical curricula in school and at universities. The EMS should gradually introduce special



Rolf Jeltsch as president of GAMM at the annual meeting in Zürich.

interest groups and become active in influencing the developments in European science politics and international mathematical organizations.

If one looks back at the past 20 years, a lot of the goals of the Berlingen Declaration have been achieved, although it took a lot longer than anticipated. The division between ‘pure’ and ‘applied mathematics’ is not made any more officially, but from my own experience it is often still in people’s minds. Moreover, the under-representation of countries from some regions of Europe still persists in the EMS committees, EMS prizes, and invited speakers. The gender balance is also far from ideal. But everywhere the gradient for change is positive, and in all these developments Rolf was a driving force. He had to overcome a lot of obstacles, because some mathematical societies were against changes, and it took someone like Rolf to get people out of their comfort zone. I have been very close to Rolf and his way of doing things for all my career and I could tell many stories that illustrate this.

A typical example of this happened during Rolf’s presidency of GAMM, which had the rule that every past president was a life-time

¹ <https://euromathsoc.org/about-berlingen-declaration>

member of the executive committee. This had the effect that almost any suggestion to change something essentially was blocked. Rolf initiated a committee for the future of GAMM, and then managed to get the by-laws changed in this respect, with him being the first past-president who lost his life-time membership. After this, GAMM became substantially better prepared for the future and many of the developments in the EMS (like the young academy or the topical activity groups) are modelled after those established in GAMM.

Another major focus of Rolf's work for the mathematical community was the scientific publication business, which already 25 years ago was clearly moving in the wrong direction, with enormous profits for commercial publishers and at the same time a strong decline of publication and scientific quality, due to the instalment of article processing charges and the occurrence of predatory journals. I remember Rolf foreseeing these developments and strongly urging that mathematical publications should be in the hands of the mathematics community, i.e., mathematical societies.

So Rolf got going and initiated the foundation of an EMS publishing house. He organized seed money from ETH Zürich and worked hard to move some top journals like JEMS to the EMS publishing house. He hired a highly proficient director with Thomas Hintermann, and the whole operation became a success story that is continuing with the successor community publishing house, EMS Press, established after Thomas Hintermann retired. Not only is EMS Press financially doing well, but it has now moved all its journals to a subscribe-to-open model and in this way demonstrates that open-access publishing can be done successfully without article processing charges. The last time I talked to Rolf he was immensely proud of this development, even though he regretted that applied mathematics is still not represented well in publications of EMS Press.

After his successful presidency terms at GAMM and the EMS, he moved on and became president of ICIAM, the International Consortium for Industrial and Applied Mathematics, which organizes the world's largest mathematical congress. ICIAM congresses involve mathematicians on all career levels and is less focused on a large number of invited talks. The participation numbers speak for themselves, e.g., Rolf organized the ICIAM congress at ETH Zürich in 2007 with more than 3000 participants, an organizational masterpiece.

Why was Rolf so visionary and so extremely successful?

First of all, he was a very hard worker. Once he was convinced of a goal to achieve, he had the skills and persistency to get things done. He was very open to network and communicate with colleagues from all areas of mathematics, but also from science and engineering.

These skills were definitely a big part of his academic career that began at ETH with the diploma in 1969, the teacher's exam

in 1970, and the PhD in mathematics in 1972. He had postdoc periods at Dalhousie University and UCLA, followed by an associate professorship at University of Kentucky. From my own experience, such long-term scientific stays overseas and learning about the way things are done in North America compared to Europe definitely widen the horizon in many different ways. Rolf's open-mindedness towards other scientific domains and cultures as well is visible in his later position he held at Ruhr University Bochum, RWTH Aachen and after his return to ETH in 1989. He was very much involved with interdisciplinary teaching and research projects with colleagues from engineering, and a driving force in the establishment of the interdisciplinary program 'Computational Science and Engineering' at ETH.

In his research work Rolf Jeltsch is well known for his contributions to the analysis and numerical solution of partial differential equations. His research topics involved the treatment of compressible fluids and magneto-hydrodynamics, where his focus was, in particular, on the stability of numerical discretization schemes for these classes of problems.

After mentioning all his great achievements, I would also like to mention Rolf's personality in supporting young researchers (like me back then) on their career paths. One could always ask him for advice and, although being very busy, he would help. All this on the other hand would have not been possible without the support of his family, especially his wife Marianne and their four children.

Rolf, thank you very much for all you have done for the mathematical community, we will miss you!

Volker Mehrmann received his diploma in mathematics in 1979, his PhD in 1982, and his habilitation in 1987 from the University of Bielefeld, Germany. He spent research years at Kent State University in 1979–1980, at the University of Wisconsin in 1984–1985, and at the IBM Research Center in Heidelberg in 1988–1989. After spending the period 1990–1992 as a visiting full professor at the RWTH Aachen, he was a full professor at TU Chemnitz from 1993 to 2000. He was full professor for mathematics at TU Berlin until his retirement in October 2023. He is a member of Acatech (German Academy of Science and Engineering), the Academia Europaea, and the European Academy of Sciences; he was president of GAMM (Association of Applied Mathematics and Mechanics, Germany), and, until the end of 2022, president of the European Mathematical Society (EMS). He was chair of the Research Center MATHEON.

Volker Mehrmann is a SIAM and AMS fellow, has held an ERC Advanced Grant, and also was member of the ERC Mathematics Panel. His research interests are in the areas of numerical mathematics/scientific computing, applied and numerical linear algebra, control theory, the theory and numerical solution of differential-algebraic equations, and in energy based mathematical modelling.

mehrmann@math.tu-berlin.de