

## **A Model of Honesty, Understanding and Bravery**

*The Humboldt Universität zu Berlin and the Weierstrass Institute for Applied Analysis and Stochastics mourn the loss of Konrad Gröger. The Professor of Mathematics, former Dean and Vice President at Humboldt Universität and Honorary Member of Weierstrass Institute died at the age of 84 years.*

*– an obituary by Alexander Mielke and Jürgen Sprekels*

Berlin Mathematics has lost one of their most influential scientists and a big personality: Professor Konrad Gröger passed away in Berlin on September 14, 2020.

Konrad Gröger's career as a scientist is quite unique, as it was shaped by his personal views of the political situation in former GDR. Starting during his studies of mathematics from 1953 to 1958 at Humboldt Universität and continuing during his „aspirantur“ at the Forschungsinstitut für Mathematik in the Academy of Sciences of the GDR (AdW) he distributed flyers with political content. In 1960 he was arrested and sentenced to eight years in prison with the charge of „espionage and treacherous propaganda“. Thanks to the intervention of courageous colleagues, he was allowed to use this time for translating mathematical research literature.

After his release from prison in 1965, Gröger was employed at the Zentralinstitut für Physikalische Chemie of the AdW until 1970. In 1968, he received this PhD with the thesis „Variational Methods for Equations with Degenerate Operators“, which was supervised by Arno Langenbach. In 1970, he started at the Institut für angewandte Mathematik und Mechanik of the AdW, which is the predecessor of the Weierstrass Institute. In 1973 he defended his habilitation with a thesis entitled „On the regularity and approximation of solutions for nonlinear evolution equations“. In 1990, he received a Honorary Professorship for Analysis at Humboldt Universität that was turned into a full professorship in 1993, thus succeeding his teacher Arno Langenbach. From 1994 to 1996, he served as Dean and from 1996 to 1998 as Vice President of the Humboldt Universität.

Konrad Gröger has left a rich scientific legacy including important and internationally renowned contributions to the theory of partial differential equations and their applications in hydrodynamics, thermodynamics, chemical kinetics, and semiconductor physics. He was an “applied“ mathematician in its best sense, who maintained multiple contacts with colleagues from other disciplines. In doing so, he also followed his goal to solve real-world problems rather than simplified versions. In particular, his joint works in the 1980s with Herbert Gajewski and further co-workers on the mathematical modeling of charge-carrier transport in semiconductor devices lead to an international breakthrough by exploring new scientific territory and creating a basis for the development of efficient simulation tools for semiconductor devices that are available today.

Additionally, Konrad Gröger was an excellent academic teacher. His joint monograph with Herbert Gajewski and Klaus Zacharias „Nichtlineare Operatorgleichungen und Operatordifferentialgleichungen“ from 1974 served as a classic for generations of students and established scientists in the field of nonlinear analysis, monotone operators, and their applications to partial differential equations. His lecture courses in these fields started in the 1980s and soon gained a legendary reputation.

Even after his retirement in 2001, Konrad Gröger was engaged in fostering young people with mathematical interests. Over many years he supported the German Mathematical Olympiads. Moreover, in the Berlin summer schools „Lust auf Mathematik“ he supervised students in acquiring modern mathematical topics beyond their high-school level. His course on topics such as differential equations, metric spaces, convexity, Banach’s fixed-point theorem, or Fourier series inspired his students, thus showing that his mathematical talent was matched by a unique pedagogical skill.

In 1998, Konrad Gröger received the Order of Merit of the State of Berlin, and since 2001 he was Honorary Member of Weierstrass Institute. On the occasion of his 80th birthday the Czech Mathematical Society awarded him the Honorary Medal for Mathematics in appreciation of his achievements concerning the German-Czech collaboration.

Konrad Gröger was a wonderful person, with a good sense of humor and great empathy. His personal integrity, truthfulness, impeccable behavior, his courageous standing up for freedom, truth, and justice, and his characterful nature left a deep impression. We have lost a highly esteemed member of the scientific community and a true friend. Until recently he actively participated and provided constructive critique in the talks of the Berlin Seminar on Nonlinear Partial Differential Equations (Langenbach seminar), which helps us to keep him in good memory. In these hours of grief our thoughts are with his family.