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PAVEL KREJČÍ TURNS SIXTY AND RECEIVES
THE BERNARD BOLZANO HONORARY MEDAL
FOR MERIT IN MATHEMATICAL SCIENCES

JÜRGEN SPREKELS, Berlin

Dr. Pavel Krejčí, who was born on June 21, 1954, in Děčín, Czech Republic, took his mathematical education from 1970 to 1973 at Lycée Daudet, Nîmes, France, and from 1973 to 1978 at Charles University in Prague.



After finishing his studies, he made a big step into real life by working for almost one year as a computer programmer for the Poldi Steel Company in Kladno, before he returned to science in July 1979 by becoming a Researcher at the Institute for Fluid Dynamics of the Czechoslovak Academy of Sciences (CAS). From December 1981

until December 1996, he worked as a Researcher at the Institute for Mathematics of CAS. During this period, he received his Ph.D. in June 1984, so-to-speak, midway in his life, and we are also celebrating the 30th anniversary of his Ph.D. in these days.

Pavel Krejčí's outstanding scientific excellence was immediately recognized by the international community, and he was awarded the prestigious Alexander von Humboldt Fellowship of the German Humboldt Foundation. He also was invited to spend longer periods abroad at numerous institutions that cannot be named here in detail.

From April to June 1996, he visited the Weierstrass Institute for Applied Analysis and Stochastics (WIAS) in Berlin and began to cooperate with the author of this note. In 1997, he joined WIAS and worked there until 2000 as a Researcher, before returning to the Institute for Mathematics of CAS as the Head of the Department of Evolution Differential Equations. He held this position for three years. During this period, he received the Research Award 2001 of the Minister of Education of the Czech Republic.

He then returned to WIAS from 2004 to 2009 to become the Deputy Head of the Research Group "Thermodynamic Modeling and Analysis of Phase Transitions". In May 2009, he was appointed Director of the Institute of Mathematics of the CAS, and he served on this position until April 2014. Looking from the outside, and having for understandable reasons a certain tendency to appreciate the accomplishments of directors, the present author does not entertain any doubt that Pavel Krejčí must have done a wonderful job indeed: the positive development of this institute in the last years is a truly outstanding piece of achievement. Today, the Institute for Mathematics of the Czech Academy of Sciences is an internationally highly recognized institution that enjoys the reputation of being a worldwide leading center of excellence in mathematics.

Now let us come to the more scientific achievements of Pavel Krejčí. He has an impressive publication list with two books and more than 120 papers in refereed international journals and conference proceedings. Moreover, which is most unusual for a mathematician, he has been granted a patent (cf. [7]) by the German Patent and Trade Mark Office. This patent witnesses his special ability and steady readiness to cooperate successfully with engineers and researchers from other fields of science.

Pavel Krejčí made important contributions to variational inequalities, to phase transition models, and to rate-independent problems in general. But from the very beginning of his career, he established himself as one of the world leaders in the development and the application of the theory of hysteresis operators in science. Many fundamental concepts in hysteresis theory go back to him. For instance, back in the early eighties he made the fundamental discovery (see [2]) that a purely geometric property, namely that certain hysteresis nonlinearities exhibit strictly convex hysteresis loops, implies a higher-order energy inequality. This energy inequality

became the analytic foundation of many existence proofs in elastoplasticity. And it was an entirely unexpected surprise that shocks cannot form in 1D wave equations when the strain-stress relation has the form of a true hysteresis nonlinearity instead of a “normal” monotone function. Pavel Krejčí thus discovered and promoted the insight that the occurrence of hysteresis is not always an unwanted complication, but may act as a welcome stabilizing feature.

Later, in 1996, his outstanding monograph “Hysteresis, Convexity and Dissipation in Hyperbolic Equations” was published (cf. [3]), which was a landmark in the theory of hysteresis operators and has ever since been used by countless researchers in many fields of science.

There are further scientific surprises due to him. For instance, in [1] he played an important part in the discovery of the connections between the notion of hysteresis operators and the Rainflow Counting Method for damage accumulation in Fatigue Analysis, in [5] he showed that very popular phase-field models for temperature-dependent phase transition phenomena can be transformed into evolution equations involving hysteresis nonlinearities (see also [6]), and we emphasize the much-cited paper [4], in which a new concept was developed for a real-time inverse feedforward controller for piezo-electric actuators.

Pavel Krejčí is an international person in the truest sense. Often, he can converse with his cooperators in their native languages. In addition to his truly remarkable French and German, he of course speaks English, and apparently has a good mastery of Italian and Russian. Therefore, he has all the necessary prerequisites to feel at home almost everywhere.

Pavel Krejčí has taken strong influence on the careers of numerous young researchers from different countries, both by giving advice and by cooperating with them directly. We mention Michela Eleuteri, Klaus Kuhnen, Matthias Liero, Dima Rachinskii, Elisabetta Rocca, and Ulisse Stefanelli, to name only a few. These younger colleagues have profited a lot from him, just as the seniors who had the privilege to experience his cooperation. Dr. Krejčí is a member of the Editorial Board of Applications of Mathematics since 1993. During the period 2002–2009 he was the Editor-in-Chief.

Let us add a few words on his personality, since it is an important part of his success and definitely worth stressing: sincerity, truthfulness, integrity, fairness, reliability, sense of responsibility, tolerance, courage and steadfastness, and, last but not least, his wonderful sense of humor and self-mockery are parts of his character. No wonder that he is respected and liked everywhere.

Pavel Krejčí has turned sixty, and on the occasion of this event the Bernard Bolzano Honorary Medal for Merit in Mathematical Sciences of the Czech Academy of Sciences was bestowed on him. Indeed, and beyond any doubt, Pavel Krejčí is

worthy of this honor, and the Czech Academy of Sciences can only be congratulated for their decision.

For the years to come, I wish my dear friend and colleague Pavel Krejčí continuing energy and enthusiasm for his plans and activities, as well as good health, happiness, and peace of mind.

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