

## In Memoriam

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# My memories to Stanisław Kielich

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Late in the fifties of the last century, as a young student of the Physics Department of Poznań University, I became fascinated with Professor Stanisław Kielich's lectures on the nonlinear optical phenomena. At that time, his first theoretical papers on the optical nonlinearity of matter were published. These publications were a consequence of his earliest works on the dielectric saturation of liquids. Just after my graduation from Poznań University, I applied for a post at the Institute of Physics of the Polish Academy of Sciences in Poznań, closely co-operating with the Division of the Experimental Physics at Poznań University. This was why our laboratory took up studies in the field of nonlinear optics. In those days (the beginning of the sixties), the first lasers were constructed at the best world-wide laboratories. Our knowledge on the lasers was residual but our enthusiasm was enormous. This enthusiasm let us construct, at the end of 1963, the first Polish ruby laser which emitted the coherent beam of the red light and so our laboratory was ready to undertake studies on nonlinear optical effects in matter. One of our aims was experimental confirmation of the Kielich's theory. My PhD thesis, defended in 1969, was devoted to the simplest nonlinear optical effect – second harmonic generation (SHG). I had proposed the generation of the light's harmonics not in single crystals but in powdered samples. My method of the investigations of SHG was fully original and relatively simple. It was published in *Acta Physica Polonica* – scientific journal of limited reach. Stanisław Kielich was one of the scientists who appreciated this method and cited my paper on frequent occasions.

I made friends with my former professor and the oldest colleague in 1971, in Bordeaux (France) where I continued with my postdoctoral studies. At that time, Stanisław Kielich – Staszek for his friends – was Associate Professor at the University of Bordeaux in Talence. Though we were working in different laboratories, our relations were very close and friendly. Naturally I took part in his lectures devoted to recent developments in the theory of nonlinear optical effects; his lectures took place at the biggest conference room of the Centre de Recherches Paul Pascal, which was always filled to capacity. It is necessary to say that the participants of Staszek's lectures were bombarded with enormous, very long and complicated formulas written on a blackboard just from memory. What an extreme memory it was! In the midst of the audience many professors, younger scientists and PhD students. Novel, yet unpublished concepts, and the original form of Stanisław's lectures appealed hugely to the audience. Phenomena and new effects anticipated by theoretical investigations of Staszek were tested by experimenters of the

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Paul Pascal Centre without delay. This co-operation yielded a crop of series of publications of Stanisław Kielich and his French co-workers, J.R. Lalanne and P.B. Martin.

We spent our evenings discussing various problems, not only scientific, but also historical or moral ones, and very often our personal experiences. When talking till late at night, I saw Staszek as a clever, competent and brave man. I had occasions to learn about his tragic youth during the Second World War as well as times of poverty and hard labour just after the war. After long homelessness, he took up his studies of physics at Poznań University (now Adam Mickiewicz University). His studies were not only tenacity of purpose but a struggle for survival. Only a man as strong as Staszek would have been able to get University graduation (in 1955) and become one of the Eminent Professors (1971) of his maternal University, Full Member of the Polish Academy of Sciences (1983), director of the Institute of Physics (1969–1975) of Adam Mickiewicz University and one of the greatest Polish physicists, widely reputable in Poland and all over the world. Kielich, as a founding father of nonlinear optics, was awarded in 1993 the Medal of Marian Smoluchowski – the greatest Polish scientific award conferred by the Polish Physical Society. Professor Stanisław Kielich was one of the most respectable and honored scientists of our time.