

## In Memoriam

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# Working with Professor Stanisław Kielich

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Professor Stanisław Kielich was already a well known scientist when I met him for the first time during my studies at the Adam Mickiewicz University. He was giving lectures on molecular nonlinear optics that were designed, at that time of mid sixties of the twentieth century, to cover quite new material of rapidly developing nonlinear optics. The new field, and the way Kielich presented it in his lectures, attracted my attention so much that I decided to join Kielich's group. I completed my MSc thesis under Kielich's supervision and started my research in theoretical nonlinear optics. It was in 1969, and since then I had the opportunity to contact Kielich on the daily basis.

Professor Kielich's research at that time was aimed at revealing nonlinear properties of molecules, and nonlinear optics became a rich source of information on individual molecules and their interactions. The strategy was to exploit various nonlinear optical processes to collect as much information as possible about an individual molecule or a group of molecules. I started my work studying nonlinear optical activity and optical Kerr effect, but Kielich's favourite topic then was nonlinear light scattering. At that time, in our group, the electromagnetic field was treated classically and it was expected to be an agent that brings us information about the matter. A plethora of nonlinear optical processes discovered when the laser light was shined on the medium made it possible to study better and better optical properties of molecules, and it was the main goal of research in Kielich's group. The research was very successful with many interesting results. There was no need for field quantisation!

After few years of studying the nonlinear properties of molecules, I bought the Russian translation of the book *Quantum Optics and Electronics* with Glauber's lectures on photon statistics given in Les Houches. After reading the lectures I realized that nonlinear optical phenomena are important not only as a source of information about matter, but they radically change the properties of light itself. One day I came to Professor Kielich and presented him my new idea to study photon statistics of light produced in nonlinear phenomena. At first, he was not very enthusiastic about my idea. He told me that there is still a lot to be done in the "traditional" nonlinear optics, and this is the top priority in his group. He even suggested me to join another group, but, after some discussion, he accepted my idea, and he asked me to collect the results I already had and to send them for publication. Since he had just received a sample copy of the journal *Optik*, he said "you can send the paper to this journal". That was my first publication, it appeared in 1974, and I was really grateful to Professor Kielich for that advise. A year

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later I completed my PhD dissertation *On photon statistics in nonlinear optical phenomena* under the supervision of Professor Kielich.

Later on, we spent many hours discussing problems related with quantum properties of light generated by nonlinear optical phenomena, we had published many papers on the subject, and Professor Kielich had become more and more enthusiastic about the subject. He had included into the Russian translation of his book *Molecular Nonlinear Optics* an additional chapter devoted to the quantum properties of the optical fields.

As years went by, our personal relations had become very friendly, and it was a great honour to me when Professor Stanisław Kielich asked me to be on first name terms with him, since then he was Staszek for me. We were working together for a quarter of a century. When Staszek became seriously ill I gradually was taking over some administrative duties in Nonlinear Optics Division, but all the time being in good contact with Staszek and trying to realize his ideas. He passed away peacefully on October 15, 1993, after few years of struggle with his illness.

In my memory Staszek remains as a brilliant scientist, who belonged to the founding fathers of molecular nonlinear optics, the scientist who was open for new ideas and accepted convincing argumentation, the man who loved life, the man who was friendly to people, the great human being.