PACS numbers: 01.60.+q

DOI: 10.1134/S1054660X0915016X

This special issue is dedicated to Prof. N.B. Delone who passed away in 2008 at the age of 82. Prof. Delone was a pioneer in multiphoton and tunneling ionization (MPI). He and his collaborators were the first to have observed MPI of one electron and two electrons experimentally. The so-called ADK formula for tunnel ionization that he and his collaborators (Ammosov and Krainov) derived became a guiding formula for experimentalists in all tunnel ionization experiment. Prof. Delone was a real leader of the multiphoton community in the former Soviet Union. He created one of the most efficient scientific groups in the world that has worked actively and very fruitfully in the field of multiphoton physics, at first in the Lebedev Physical Institute and later moved to the newly organized General Physics Institute, Moscow. Prof. Delone was a great organizer and supporter of the research work on multiphoton physics in other cities and republics of the former Soviet Union. He organized a famous and very popular series of informal Workshops which took place regularly in 1970th–1980th in the cities of Voronezh, Kishinev, Uzhgorod. These meetings were crucially important for young scientists, as well as for initiation and supporting new research directions, such as, e.g., multiple ionization of atoms in a strong field in the provincial research centers of the former Soviet Union. Very soon after the formation of the General Physics Institute (1983) Prof. Delone organized a weekly all-Moscow scientific seminar on multiphoton processes. This seminar became very popular and still

exists nowadays. With the beginning of *perestroika*, when personal contacts with foreign scientists became possible for Prof. Delone, he extended his activity to establish a close collaboration with French, Canadian and other foreign scientific laboratories. As a result, many of his former students are incorporated now into the international scientific work in many teams in the world. In spite of many obstacles, Prof. Delone managed to do physics with a great enthusiasm breaking frontiers in strong-field physics.

Prof. Delone was a great teacher. He wrote a series of books on multiphoton processes. Until his very last days he was lecturing in the Moscow Institute of Physics and Technology. During his last years he worked actively with very young students in one of the famous Moscow colleges oriented towards deeper education in physics and mathematics.

The contributions in this issue cover a great variety of subjects related to strong field physics, quantum optics, and chemistry. The authors are from many countries including Russia, Germany, France, Spain, China, Japan, Canada, USA, Ukraine, and Uzbekistan. This testifies the important impact of Prof. Delone on the scientific level. There are also many personal stories told by his former students, colleagues and friends from all over. His influence at the personal level is thus evident. We all miss him.

S. L. Chin and M. V. Fedorov