

More than half a century of solid state physics at the University of Warsaw: from Hoża to Pasteura

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Nobody doubts that the driving force of research are people who are open to new ideas and able to interact with others. Undoubtedly, such a person was professor Leonard Sosnowski - the founder of the school of solid state physics at the University of Warsaw. It was a surprise to me that his scientific path led from optical research, for which the Institute of Experimental Physics at Hoża street was well-known in the 1930s, through research on radioactivity, to the foundations of the p-n junction in semiconductors. Perhaps this experience helped him to gather highly motivated, talented people who took part in the development of solid state physics at the University of Warsaw.

In this presentation, I will try to review the greatest experimental and theoretical achievements at the Faculty of Physics and show how important former studies, performed several decades ago at Hoża, are for the current research at the Pasteura Street, in particular regarding magnetic semiconductors, spectroscopy of excitons and defects, application of external perturbations like hydrostatic and uniaxial pressure, magnetic field in optical as well as electrical studies of semiconductors.

The knowledge acquired in the experimental and theoretical studies as well as the technology of bulk materials belonging to the II-VI and III-V families is fundamentally important for the understanding of physics of low-dimensional systems like quantum wells or quantum dots, including those containing a single magnetic ion, and many other modern systems. It is clear that newly opened research fields, like the physics of 2D layered materials, for example graphene, boron nitride, transition metal dichalcogenides, Bose-Einstein condensates of polaritons, single photon emitters, perovskites and many others, all profit from the expertise acquired in the past. Thanks to well-equipped laboratories located in the new buildings at Pasteura Street and a broad international cooperation, we are now in a much better situation than half a century ago. In summary, I will discuss the history and some of the most recent solid state physics projects at the Faculty of Physics, University of Warsaw.