The name of the department is more or less a historical one. At present, the scope of activities carried out is much broader and they are not devoted to nuclear spectroscopy only. Nevertheless, several research topics carried out in the Department have still strong relation to nuclear spectroscopy. Activities carried out at our department are devoted to the latest trends in the experimental nuclear physics and radio-chemically based activation analysis. The collaboration with prominent abroad research institutions plays key role in work of the department.

Activities of Relativistic and Ultra-Relativistic Heavy Ion Physics Groups are quite far from the original nuclear spectroscopy; nevertheless they are carried out at the Department exploiting particularly accumulated experience of our technical staff with various particle and photon detectors as well as exploiting the installed small computer center incorporated into international GRID network. Experimental data are obtained in the framework of international collaborations. In particular: study of strongly interacting matter and quark-gluon plasma is carried out by [STAR](https://www.star.bnl.gov) collaboration at RHIC (BNL, USA) and in future it will be performed within [ALICE](https://alice.cern.ch) collaboration at LHC (CERN); study of hadron properties inside hot and dense baryonic matter is carried out by [HADES](https://haides.gSI.de) collaboration at SIS (GSI, Germany) and in future it will be performed by [CBM](https://www.gSI.de) collaboration at FAIR (GSI, Germany).
Experiments devoted to the measurement of magnetic moments of nuclei exploiting low temperature nuclear orientation are carried out by our colleagues in the frame of broad experimental project probing isospin structure of nuclei at ISOLDE facility (CERN). Members of Electron Spectroscopy Group are participating in the building of \textbf{KATRIN} project (FZ Karlsruhe) with the aim to find out whether the electron neutrino mass is above 0.2 eV or not. Particularly, the group is responsible for the development of ultra-stable calibration and monitoring technique for the energy scale of future KATRIN spectrometer.

Standard spectroscopy techniques based on detection and analysis of gamma spectra emitted by irradiated foils (activation detectors) are exploited by our colleagues involved in detailed studies of neutron production and transport in “Energy and Transmutation” set-up, consisting of lead target and uranium blanket. The experiments are carried out in cooperation with JINR Dubna. Results are compared with simulations obtained by the newest version of MCNPX code using different models and libraries. Differences between experiment and simulation increase with higher beam energy. The set-up was irradiated by relativistic protons of different energies from 0.7 GeV up to 2.5 GeV using JINR Dubna Nuclotron. We are also part of \textbf{EFNUDAT} project supported by EU. These studies are important for verification and improvement of currently available simulation codes suitable for future design of accelerator driven transmutation systems.

Similar spectroscopy techniques are exploited by Group of Activation Analysis. This group is
involved in the development of advanced neutron and photon activation analysis procedures, in both non-destructive and radiochemical modes, and their applications in multidisciplinary research, namely in environmental, biomedical geo- and cosmo-chemical sciences. Particularly it was involved in analysis of sandstones of Angkor temples, Khmer Empire (Cambodia), which were included into the World heritage list in 1992.

Several senior researchers of our department read lectures for University students and/or supervise diploma works and doctoral dissertations. And – the last but not the least – they are also involved in outreach activities, particularly writing articles for popular journals and giving lectures to general public about the physics of micro world.

A. Kugler