



Progress Report for NRDC Meeting 2023

ATOMKI

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09-12 May, 202

Staff and changes

The organizational structure of the institute had changed again to research group level.

- departments and groups,
- laboratories,
- research groups

Nuclear technology group: Number of active staff member: 7 persons.

Nuclear astrophysics group: Number of active staff member: 7 persons.

Experimental nuclear physics group: Number of active staff member: 5 persons.

Staff members are slowly changing. (retirements, young researchers)

Nuclear technology group

The research program:

- Experimental determination of cross sections for light charged particle induced reaction on various target materials. (targetry, cross sections, and yields)
- Compilation, evaluation of low and medium energy data. (production of recommended cross sections for selected reactions)
- Research of medical radioisotopes (targetry, production, chemistry, low level applications)
- Contribution to international collaborations
- Thin Layer Activation (TLA methodology and applications)

Activity in 2022-23

- Measurements of reaction cross sections ($Sc+p$, $Ta+a$, $Re+a$, $Re+d$, $Pt+a...$)
- Evaluations of experimental cross section data of nuclear reactions for production of medical isotopes. (PET 29 reactions, SPECT 28 reactions)
- Irradiation of machine parts for TLA applications (DLC diamond like carbon and steel materials)
- EXFOR data compilations (All the new associated articles were compiled, + correction of old entries)
- Investigation of error sources of isomeric ratio measurements.

Collaborations

- VUB, Cyclotron laboratory of Free University Brussels, Belgium,
- Nishina Center for Accelerator-Based Science, RIKEN, Wako, Saitama, Japan,
- Faculty of Science, Hokkaido University, Sapporo, Japan,
- Institute of Physics and Power Engineering (IPPE), Obninsk, Russia.
- Cyclotron Facility, Nuclear Research Centre, Atomic Energy Authority, Cairo, Egypt,
- Austrian Competence Center for Tribology, AC²T Wiener Neustadt, Austria

Nuclear Astrophysics Group

- The research program is to measure cross section of charged particle induced reaction at low energies relevant for various astrophysical processes.
- Experimental work was done at the tandetron and cyclotron laboratory of ATOMKI, and in international collaborations
- Publications: 30+ EXFOR compilation allocated to different groups as the work were done in international collaborations.

Experimental nuclear physics group

- Measurements and evaluation of new nuclear structure and decay data.
- Collaboration work with research groups at RIKEN, GANIL, GSI, Gammasphere, Exogam, Jurogam
- Mass-chain evaluation work for ENSDF and compilation work for XUNDL.
- Evaluation responsibility of the $A=101 - 105$ mass chains.
- Most of their papers were published in international collaborations. Compilation responsibility is not of ATOMKI.



Thank you