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The Atomki Accelerator Centre: A Complex of Six Low-Energy Accelerators

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During the 60-year history of the Atomki majority of the research have been based on the particle accelerators of the institute. The accelerators served the requirements of the users in different fields of atomic physics, nuclear physics and applications. In the first decades each accelerator belonged to that department which was the main user of the given facility. In 2009 however a new division was established: the Atomki Accelerator Center (AAC). It incorporates staff physicists, engineers and operators (about 20 persons) and 6 low-energy ion accelerators offering the possibility of selecting ions with various charge states, energies and beam intensities. The AAC got into the European MERIL and NUPECC databases.

Accelerator Energy (proton) Particle Start Source
VdG-1 0.1 –1.0 MeV H, D, He 1970 homemade
VdG-5 0.6 - 3.8 MeV H, D, He, C, N, O, Ne 1971 homemade
Cyclotron 5 –18 MeV H, D, He 1985 external
ECR ion source 50 eV - 30 KeV H to Pb, molecules 1996 homemade
Isotope separator 50 eV –50 KeV He, Ne, Ar, N, S, Se 2009 homemade
Tandetron 0.2 - 4 MeV H, C, O 2015 external

The organization of the new AAC changed several many-years traditions. The financing background is henceforward continuously ensured by the academic budget of the institute, while the costs of maintenances and unforeseen repairing are managed by the head of AAC. Beamtimes are requested on-line, opinioned by the Program Advisory Committee and approved by the director. The scheduled and delivered beamtimes are visualized in the internet. According to the AAC policy the applied engineers and operators have to pass several exams (vacuum theory and practice, radiation safety, accelerator theory, accelerator operation etc.). The result is new staff members are now traded to operate 2 or sometimes 3 different accelerators which makes the organization of the shifts (both for technical and human point of views) more economical, flexible and safer.

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