

Ion Beam Analysis and Remote Accelerator Operation

Tandem accelerator facility of the Ruder Bošković Institute is the largest research infrastructure in Croatia. It consists of two electrostatic tandem accelerators (1.0 and 6.0 MV), which, with available ion sources, provide a wide range of ion beams and their respective energies. Various end stations distributed at nine beam lines, including the dual beam irradiation scattering chamber, enable performance of experiments in many basic and applied research areas. Furthermore, facility has important position in its use for education and training as well as in services provided for public and industrial partners.

Modern capabilities offered by the computer control of the facility and user-friendly system for experiment control and data acquisition, significantly increased the possibility of accelerator utilization. Until today remote accelerator operation was used in many cases.

The use of the remote access to ion beam analysis capabilities and in particular for PIXE and RBS has been demonstrated several times during the training courses organized in other countries, including those organized by IAEA from its Seibersdorf site. Also, external users who are already familiar with RBI facility, but were not capable to travel to facility have also performed several remote experiments. In those cases users' test samples were sent to Zagreb, where responsible person installed them into the chamber and assisted remote experimenter to perform the measurements. Off-line versions of the software offer to experimenter possibility to complete data evaluation without necessity to use local computing facilities. Not less important are also examples of remote access that are related to the lack of expertise of users that perform experiments on site. In many circumstances it happened that experienced accelerator operator tuned the accelerator without being personally present in the facility, sometimes even from abroad. All these examples will be reviewed in the context of possible reduction of costs and better accelerator utilization.

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