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## **IAEA activities in support of sustainable development of accelerator facilities and the IAEA Ion Beam Facility Project**

*Wednesday, 29 November 2023 12:05 (25 minutes)*

Due to their unique analytical and irradiation capabilities, ion beam accelerators play a major role in solving problems of modern society related to environmental pollution and monitoring, climate change, water and air quality, forensics, cultural heritage, agriculture, development of advanced materials for energy production via fission or fusion, and many other fields. Moreover, particle beams delivered from almost 20.000 accelerators worldwide are used for industrial applications and high-tech services resulting in business revenues in the billion-dollar scale, which clearly demonstrates the decisive contribution of particle accelerators to the increase of competitiveness of economies worldwide and the welfare of modern society in general.

For all these reasons, accelerator-based applications are among the thematic areas, where the International Atomic Energy Agency (IAEA) supports its member states in strengthening their capacity to adopt and benefit from the use of accelerators. In this context, the IAEA Physics Section implements various activities in support of accelerator-based research and applications that focus on

- promoting the utilization of accelerators in support of applied research in almost all fields with high societal and economic impact,
- enhancing utilization of existing accelerator infrastructures by enabling facility access for scientists from developing countries without such facilities,
- assisting scientists from developing countries in carrying out feasibility and infrastructure assessment studies and establishing new accelerator facilities.
- assisting Member States in installing, operating and maintaining their accelerator facilities and associated instrumentation

In addition to the aforementioned activities a feasibility study for an ion beam accelerator facility (IBF) at the IAEA laboratories in Seibersdorf was performed in order to assess the interest of Member States in using this facility. Forty Member States have quantified their needs through replies to a properly designed questionnaire. The analysis of the questionnaires showed high demand in training in accelerator technologies and associated Ion Beam Analysis (IBA) techniques, as well as in analytical services in almost all areas of IBA applications. An appropriate accelerator design, matching the IAEA's programme for capacity building and provision of products and services across many fields of interest for the Member States, was identified.

Under these developments, the need of a project aiming at establishing an ion beam facility at Seibersdorf was justified. The main objective of the IBF project is to establish a state-of-the-art accelerator facility at the IAEA laboratories in Seibersdorf to cover the identified Member States' needs for training scientists and engineers in operating and applying ion beam accelerator technologies and to provide a range of associated services. The expected outcome of the project is to enhance the capacity and capability of the IAEA to address the rising demand of Member States to provide assistance in promotion of applied research using accelerator technologies for a large variety of medical and industrial applications.

This presentation aims at disseminating the IAEA tools and activities in support of accelerator-based research and applications are implemented. Moreover, details on the feasibility study, the instruments, and facilities to become available through the IBF project, including preliminary estimates of the resources, will be presented.

### **Attendance Type**

Remote

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