ESR - USERS SESSION: Short- and Midrange Program of Atomic Physics (Th. Stöhlker)

In the light of the extended upgrade of the experimental environment at the ESR storage ring which has been completed recently, the opportunity was seen to discuss the short- and midrange program (up to three years) of atomic physics at the ESR. The upgrade basically concentrated on a more flexible jet-target environment and the installation of a 0 deg electron spectrometer. Now, at the ESR jet-target zone, a recoil ion spectrometer (COLTRIMS) can be inserted as well as alternatively a target chamber allowing to use simultaneously an entire array of photon detectors and spectrometers, a setup which is currently installed. However, an interchange between different target chambers and set-ups still requires breaking of the ESR vacuum system with all the corresponding consequences, in particular with respect to resources of technical man-power and the time investment. This means that no frequent set-up changes are possible, so experiments making use out of the same chamber arrangement should be scheduled together for fixed time periods. Therefore, a midrange planning of the different experimental activities based on a close cooperation of the atomic physics user groups at the ESR is compulsory. With respect to the jet-target, the users agreed on a strategy that within the next 12 to 18 months, the experimental program should concentrate on x-ray experiments. Thereafter, for a time period of about one year, one should switch to recoil-ion experiments once the new COLTRIMS chamber is ready for commissioning. The precise dates will depend on the overall beam time schedule of GSI for the year 2002.

Besides the jet-target experiments, there is an additional strong demand for beam time by various other atomic physics experiments at the ESR, focusing e.g. on laser spectroscopy, dielectronic recombination studies and external experiments using decelerated ions in Cave A. In total, ten atomic physics experiments applied for ESR beam time for the year 2001. However, as was reported by the GSI-beam time coordination R. Holzmann, it is evident that most of these experiments cannot be considered within the beam time schedule of 2001. Here, it is also important to note that there is an increasing interest of nuclear physics groups in performing experiments at the ESR (e.g. mass measurements). In view of this lack of beam time available, the ESR users discussed in the session the priority for two possible AP experiments which still can be scheduled for the 3rd and 4th beam time block in 2001. They agreed on the proposition, that the channeling experiment at Cave A (E027) using decelerated ions from the ESR and the laser experiment focusing on the hyperfine structure study for Li-like Bi^{80+} (E025) should have priority. A complete beam time schedule for the 3rd and 4th block 2001 is just under discussion and a preliminary schedule can be found on the WEB.

Summarizing the current situation, the operating conditions at the ESR improved considerably during the recent years. As presented during the workshop by M. Steck, the dramatic gain in luminosity and the progress made in deceleration are in particular impressive. In addition, the very recent upgrade of experimental installations increased the attractivity of the ESR for new and challenging atomic physics experiments in the realm of heavy highly-charged ions. On the other hand we are facing in the moment a serious oversubscrition of available beamtime and general shortage of man power. Therefore, a close cooperation of the various atomic physics user groups seems to be most imperative in order to guarantee a most efficient usage of beam time which also does allow for an midrange planning of the AP program. For this purpose, a short annual meeting (one or two days) of the AP users convening at GSI seems to be appropriate.

Finally, it was a consensus among participants that the external users ought to support the current activities at the ESR by sending students or postdocs to GSI. With the current number of students and postdocs available for the experiments at the ESR it will get increasingly difficult to accomplish experiments as it was possible in the past (currentely the situation is dramatic because not even one postdoc is working at the ESR) .