

An Upgraded Photon-Tagging Facility at MAX-lab

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From 1993-2001, the second-generation tagged-photon facility [1] at MAX-lab was used to conduct high-resolution real-photon experiments for $10 < E_\gamma < 80$ MeV ($\Delta E_\gamma \approx 300$ keV). During this time, approximately 20 students from around the world earned their doctoral degrees based upon work performed at this facility [2]. The resulting high-resolution (γ, p) , (γ, n) , (γ, pn) , and (γ, γ) data have lead in part to a renewed theoretical interest in photon-induced reactions [3]. Accordingly, in a recent review of MAX-lab by the Swedish Research Council, the KFOTO group was recognized for its role in the development of the laboratory, and ongoing support for tagged-photon activities was pledged.

At present, the electron accelerator at MAX-lab is undergoing an energy upgrade. By the end of 2004, it is anticipated that a 250 MeV pulse-stretched electron beam will be available for nuclear physics experiments. Fully instrumented tagging spectrometers [4] graciously donated by the Saskatchewan Accelerator Laboratory in Canada are presently being installed. The resulting third-generation tagged-photon facility will be capable of providing $18 < E_\gamma < 225$ MeV ($\Delta E_\gamma \approx 200 - 500$ keV) tagged photons to experimenters. The possibility of generating linearly polarized photons is also being investigated [5].

It is anticipated that experimental nuclear physics at MAX-lab shall continue to function as a PAC-governed user facility. We are thus keenly interested in identifying our future user base. To this end, the Second MAX-lab Workshop on the Nuclear Physics Program with Real Photons below 250 MeV was held in Lund in May, 2002 [6]. Seventeen Letters-of-Intent proposing a diverse array of future experiments to be performed at MAX-lab were presented by representatives of 20 institutions from research groups on five continents. These Letters have been evaluated and prioritized by the PAC [7]. Further, the inaugural MAX-lab Nuclear Physics User Group Meeting will be held in Lund in November, 2003. Within this round-table discussion forum, future users will play a key role in determining the organizational structure of their facility.

In this talk, an overview of the project will be presented.

References

- [1] J.-O. Adler *et al.*, Nucl. Instrum. Methods Phys. Res. Sect. A **388**, 17 (1997).
- [2] http://www.maxlab.lu.se/kfoto/kf_publ.html.
- [3] see for example <http://www.unitn.it/convegna/ffleap>.
- [4] J. M. Vogt *et al.*, Nucl. Instrum. Methods Phys. Res. Sect. A **324**, 198 (1993).
- [5] J.-O. Adler *et al.*, Dept. of Nuclear Physics at Lund University Internal Report, 2001.
- [6] Proceedings, Dept. of Nuclear Physics at Lund University Internal Report, 2002.
- [7] summaries are presented in the MAX-lab Activity Report, 380 (2001).