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ATLAS Call for Proposals Deadline for proposals: Monday, October 28, 2013

Dear ATLAS User,

This is a call for proposals for experiments at ATLAS, for the scheduling period beginning in January 2014. The ATLAS Program Advisory Committee (PAC) meeting will be held November 22-23, 2013.

Please note that this is a **call for proposals for all experiments using stable beams, radioactive beams produced by the in-flight technique, and low-energy and reaccelerated radioactive beams from the CARIBU source. This is also the first call for proposals for experiments with the GRETINA gamma-ray tracking array that will be operational at ATLAS from January 2014 to December 2014.** GRETINA operation at ATLAS is expected to be split into two campaigns. GRETINA's first campaign at ATLAS will have it sited on the APEX beamline where it will be operated in stand-alone mode or with auxiliary detectors such as CHICO-II. During that time, Gammasphere will remain operational in front of the FMA. For the second campaign (fall 2014), GRETINA will be moved in front of the FMA where it can sit much closer to the spectrometer than Gammasphere and hence provide significant gain in efficiency for certain experiments requiring both gamma and recoil identification. The duration of this second campaign, expected to take place in the fall of 2014, will be set based on the requested beamtime for this setup in this and the next PAC cycle (expected in the early summer 2014).

ATLAS is currently completing an intensity and efficiency upgrade and is scheduled to be back in operation with full capabilities in January 2014. Transmission of the linac, maximum available beam intensity and transverse emittance should all be significantly improved. The tandem accelerator is no longer available as an injector to ATLAS after the upgrade but all efforts are being made to insure that all beams previously available from the tandem will now be available from the ECR sources. In addition, a new ^{252}Cf source for CARIBU will be installed in November 2013 to have higher CARIBU beam intensities available during the GRETINA campaigns. Depending on how successful the next source preparation is, this should result in a gain of 3 to 10 in intensity for all CARIBU beams. To be conservative, Users are requested to use the table of intensities for low-energy and reaccelerated CARIBU beams available on target for the December 2012 PAC (posted at http://www.phy.anl.gov/atlas/facility/caribu_beams_Nov13.html) to plan CARIBU proposals for this PAC cycle, clearly separating calibration and measurement time, and providing the total integrated radioactive beam ion number required for a successful measurement. Proposals using isotopes from both the light and heavy fission peaks will be accepted in this PAC cycle. More

neutron-rich isotopes not listed in the posted table are also available at lower intensity for low-energy experiments; Users planning experiments with these more difficult beams should contact G. Savard (savard@anl.gov) for additional information. Reaccelerated CARIBU beams can also be accompanied by significant stable beam contamination. Experiments with rate limited counters at zero degree are particularly affected by such contamination and should address how they will deal with this issue in their proposal. Finally, we also encourage Users who plan to bring new equipment to ATLAS for CARIBU experiments (with either low-energy or re-accelerated beams) to contact members of the scientific staff or the user liaison scientist at their earliest convenience so that adequate planning can occur and the instrumentation can be accommodated properly.

Please remember that, at the request of the PAC, some specific requirements for proposals have been implemented (see below). Please take them into account while preparing your submissions.

Some of the experiments that received "Priority II" approval could not be scheduled in the period since the last PAC meeting because of heavy pressure for beam time. This approval does **not** carry over to the next cycle and such proposals must be resubmitted for consideration by the PAC if beam time is still desired.

During the present PAC period, Gammasphere was located in front of the FMA as there was no request for stand-alone operation on the other beam line. However, during the second GRETINA campaign, the array will be moved to its stand-alone location either during the upcoming PAC period or during the next one. Hence, we welcome proposals for Gammasphere and GRETINA at both locations. Note that the presence of Gammasphere or GRETINA at the FMA continues to constrain the intensity of beams allowed for some FMA experiments.

Format of Proposals:

We encourage the electronic submission of proposals, although hardcopy submissions will also be accepted. The instructions for filling out the web-based forms can be found on our web site at: <http://www.phy.anl.gov/atlas/pac/proposals.html>.

To request beam time, please complete either the web-based form(s) or download and complete the requisite form(s), and write a description of the proposed experiment summarizing the scientific justification, motivation, feasibility, and relevant technical and safety information. The proposals can be sent electronically as an e-mail attachment to zhu@anl.gov in either (I) Portable Document Format (.pdf), (II) Postscript format (.ps), or (III) in Microsoft Word. The alternative is to print **15** hardcopies and mail them to Barbara Weller.

Contents of the Forms: There are two forms, the first of which is the proposal fact sheet on the web at <http://www.phy.anl.gov/atlas/pac/prop-factsheet.html>, which must accompany all proposals. The second form is specific to Gammasphere experiments and can be found at <http://www.phy.anl.gov/atlas/pac/GS-checklist.html>. On the proposal fact sheet, **please list**

the maximum beam energy and current you require. This essential information is needed for radiation safety calculations. Also, beam tuning will be based on these upper limits. An increase in energy above the stated maximum or a change in beam species requires prior notice. Finally, by signing the hardcopy form or entering your name in the verification box on the web-based form, **you are certifying that all collaborators listed on your proposal are fully aware of the proposal and have agreed to participate in the experiment.**

Contents of Proposals: The proposals should be self-contained; including a **list of participants**, an **abstract**, the **basic physics goals** of the experiment, a **discussion of what exactly will be done** in the measurement and any pertinent **references**. Sufficient technical details of the proposed measurement and count-rate estimates should be included, for the PAC to be able to judge feasibility and the scope of the measurement, and impact on available ATLAS resources in manpower and hardware. **The PAC requests that the proposals be kept to a reasonable length, 5 pages maximum plus figures and appendices. It is to be presented in single-column format (i.e., a full Phys Rev C length article in two-column format is not acceptable), with fonts no smaller than those in this letter (12 pt).**

In your proposal please summarize the results of previous experiments by the group and indicate the status of the data analysis and publication. This information will be taken into account during the PAC assessments.

Please indicate also whether the proposal is part of a PhD thesis project. A question to this effect has been added to the proposal fact sheet.

Background Information

Beam Species: The beams that are routinely available from ATLAS are listed on the ATLAS Web page at http://www.phy.anl.gov/atlas/facility/stable_beams.html. They range from ${}^7\text{Li}$ to ${}^{238}\text{U}$. Other beams may be possible, after some development, and their feasibility should be discussed with the ATLAS Operations Group before a proposal is submitted.

Beam Isotope: The beam currents for elements listed in the table of available beams were obtained using natural material. Other isotopes are available with currents generally proportional to their abundance. Any special preparation that may be needed should be discussed with the Operations Group prior to submission of the proposal. The practicality of a beam may be a consideration in the approval of a proposal.

Radioactive Beams: The radioactive beams produced by the in-flight technique are listed on the ATLAS Web page at http://www.phy.anl.gov/atlas/facility/radioactive_beams.html. The contact person for additional information is Richard Pardo (pardo@phy.anl.gov). For low-energy and reaccelerated CARIBU beams, a yield table for the beam intensities to be used for experiment planning is posted in pdf format at

http://www.phy.anl.gov/atlas/facility/caribu_beams_Nov13.html. The contact person for additional information is Guy Savard (savard@anl.gov).

Experimental Equipment: General information on experimental equipment can be found in the ATLAS User Information page (<http://www.phy.anl.gov/atlas/users/index.html>). Other equipment is also available for potential Users, and there are general-purpose beam lines for additional scattering chambers or other non-standard equipment. For the current status of a specific experimental station, please contact any one of the Laboratory staff members or the user liaison physicist.

HELIOS: Experiments with the **HELIOS** spectrometer for measurements of reactions in inverse kinematics have been carried out by the University of Western Michigan, University of Manchester, Argonne National Laboratory collaboration. Scientists interested in using the device are requested to contact representatives of the collaboration, Alan Wuosmaa (alan.wuosmaa@wmich.edu) and Birger Back (back@anl.gov), to discuss the feasibility of a measurement.

Gammasphere and FMA: **Gammasphere** and the **FMA** are complex instruments that may be used combined or separately in experiments. There are a number of options for their utilization. To aid the user in preparing proposals, see <http://www.phy.anl.gov/atlas/pac/GS-checklist.html> for some of these options. Details concerning Gammasphere may be found at <http://www.phy.anl.gov/gammasphere/index.html> or by directly contacting M.P. Carpenter (carpenter@phy.anl.gov); FMA details are at <http://www.phy.anl.gov/fma/index.html> or by contacting D. Seweryniak (seweryniak@anl.gov).

Gretina: **GRETINA** will be available for experiments at ATLAS during the calendar year 2014. It is a complex instrument, the next step in gamma-ray spectroscopy, and its performance is evolving rapidly. Users requiring information on the device performance to prepare their proposal should contact S. Zhu (zhu@anl.gov) or A. Macchiavelli (aomacchiavelli@lbl.gov). In particular, the device operates with a digital acquisition system and interfacing some auxiliary detectors to it might require preparatory work and should be planned accordingly.

Access to Experiments with Beam: The ARIS system is designed so that for low-level radiation, where appropriate conditions are satisfied, access to the experiment is possible during the course of a measurement. More information can be found in the ATLAS Users Handbook.

Program Advisory Committee

PAC membership. The present PAC membership is: Dan Bardayan (Oak Ridge National Laboratory), Michael Carpenter (Argonne National Laboratory), Alexandra Gade (Michigan

State University), John Hardy (Texas A&M University), Walter Loveland (Oregon State University), Witek Nazarewicz (University of Tennessee, Oak Ridge National Laboratory), Ingo Wiedenhofer (Florida State University) and Alan Wuosmaa (Western Michigan University) as Chair of the ATLAS Users Group.

Please feel free to contact the ATLAS user liaison physicist (zhu@anl.gov) with any questions. Web-based submissions must be received before midnight on **October 28, 2013**, or send **15** copies of your proposal and necessary enclosed forms such that they arrive by **October 28, 2013** to:

Mrs. Barbara Weller
PHY203
Argonne National Laboratory
9700 S. Cass Ave.
Argonne, IL 60439-4843

Confirmation of the reception of your proposal should reach you via email by October 28, 2013.

We are looking forward to exciting proposals for research at ATLAS.

Sincerely,

Guy Savard
ATLAS Scientific Director

GS:bw