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ATLAS Call for Proposals

Deadline for proposals: Friday, February 9, 2018

Dear ATLAS Users,

This is a call for proposals for experiments at ATLAS, for the scheduling period beginning in May 2018. The ATLAS Program Advisory Committee (PAC) meeting will be held March 23-24, 2018.

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 PAC cycle will also accept proposals for the GRETINA campaign (stand-alone or with the FMA spectrometer) at ATLAS and the AGFA gas-filled spectrometer.**

GRETINA is operational with 11 quads (44 crystals) in front of the FMA which has a new larger entrance quadrupole so that the target position can be located at 30 cm in front of the FMA, significantly increasing acceptance. GRETINA is available through this PAC cycle for experiments with the FMA or in stand-alone mode with or without auxiliary detectors. The newly commissioned AGFA gas-filled spectrometer is also operational and is available for experiments using the focal plane detector of the FMA or other devices.

A new thinner larger area ^{252}Cf source for CARIBU is being prepared at the HFIR reactor and is expected to be shipped to ANL by the end of January 2018. Beams from this source are expected to be available in the new low-energy CARIBU experimental area starting in March 2018 and as reaccelerated beams by the end of April 2018. It should provide increased yield for the CARIBU facility but until it is fully characterized we conservatively request that users who are interested in using CARIBU beams in this PAC cycle plan their experiments based on the table of intensities for low-energy and reaccelerated CARIBU beams posted at <http://www.phy.anl.gov/atlas/facility/ExpectedCARIBUBeamIntensitiesForOctober2016PACCycle.pdf>. 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) or D. Santiago-Gonzalez (dasago@anl.gov) for additional information. The reaccelerated CARIBU beams will be provided through the EBIS charge state breeder which removes the significant stable beam contamination that was generated in the previously used ECR charge state breeder. Experiments with rate limited counters at zero degree

were particularly affected by contamination and should no longer have to consider such contamination in their proposal; however, radioactive isobar contamination should still be considered in the proposal. Finally, we encourage Users who plan to bring new equipment to ATLAS for CARIBU experiments to contact members of the scientific staff or the user liaison scientist (dasago@anl.gov) at their earliest convenience so that adequate planning can occur and the instrumentation can be accommodated properly. In particular, a new larger low-energy CARIBU experimental area with much reduced radioactive backgrounds will become available starting in March 2018.

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 carry over one more PAC cycle. Such proposals will however have to be resubmitted for consideration by the following PAC if they have not yet been scheduled and beam time is still desired.

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 kondev@anl.gov in either (I) Portable Document Format (.pdf), (II) Postscript format (.ps), or (III) in Microsoft Word.

Contents of the Forms: There are two forms, the first of which is the proposal fact sheet on the web at https://www.phy.anl.gov/cgi-bin/prop_factsheet.pl, which must accompany all proposals. The second form is specific to Gammasphere experiments and can be found at https://www.phy.anl.gov/cgi-bin/GS_checklist.pl. 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 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 ^7Li to ^{238}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 Clay Dickerson (cdickerson@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/ExpectedCARIBUBeamIntensitiesForOctober2016PACCycle.pdf>. The contact persons for additional information are Daniel Santiago-Gonzalez (dasago@anl.gov) or 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 Daniel Santiago-Gonzalez (dasago@anl.gov).

HELIOS: the **HELIOS** spectrometer for measurements of reactions in inverse kinematics has been developed by the University of Western Michigan, University of Manchester, Argonne National Laboratory collaboration. Scientists interested in using the device are requested to contact the representative of the collaboration, Calem Hoffman (crhoffman@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).

AGFA: The **AGFA** gas-filled spectrometer is a new instrument that is installed on the APEX beamline and is available to operate in conjunction with **Gammasphere** or in stand-alone mode. Details concerning AGFA can be obtained by contacting B. Back (back@anl.gov) or D. Seweryniak (seweryniak@anl.gov).

GRETINA: **GRETINA** will be available for experiments at ATLAS during this PAC cycle. 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 ATLAS Radiation Interlock System (ARIS) 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 (University of Notre-Dame), Gordon Ball (TRIUMF), Peter Butler (University of Liverpool), Michael Carpenter (Argonne National Laboratory), Alexandra Gade (Michigan State University), Thomas Papenbrock (University of Tennessee), Ingo Wiedenhofer (Florida State University) and Nick Scielzo (Lawrence Livermore National Laboratory) as Chair of the ATLAS Users Group.

Please feel free to contact Filip Kondev (kondev@anl.gov) or Daniel Santiago-Gonzalez (dasago@anl.gov) with any questions. Web-based submissions must be received before midnight on **February 9, 2018**.

Confirmation of the reception of your proposal should reach you via email by February 10, 2018.
We are looking forward to exciting proposals for research at ATLAS.

Sincerely,

A handwritten signature in black ink, appearing to read "Guy Savard". The signature is fluid and cursive, with a large initial "G" and a long, sweeping underline.

Guy Savard
ATLAS Director