ATLAS Proposal Form

PAC cycle Mar/2019

Instructions:
1. Fill and submit this form
2. Send a pdf file of your proposal via a separate email to atlas-proposals@anl.gov.

A copy of the submission will be sent to the email address of the principal investigator (PI) which must be provided below.

* Required

1. Email address *

2. PI last name *

3. PI first and middle name *

Co-PI (alternate)

4. Co-PI email address

5. Co-PI last name

6. Co-PI first and middle name

Proposal background information

7. Was this proposal submitted to a previous ATLAS PAC? *
   Mark only one oval.
   □ Yes Skip to question 7.
   □ No Skip to question 12.

Previous proposal information
Most questions in this section are optional

8. Previous proposal title
9. PI last name of the previous proposal

10. Previous proposal assigned number
    Example: 1765

11. PAC cycle of the previous proposal submission
    *Mark only one oval.*
    - Mar/2018
    - May/2017
    - Oct/2016
    - Nov/2015
    - Mar/2015
    - Sep/2014
    - Other:

12. Summary of results from previous proposal *
    Please summarize any previous results and/or publications by the group related to the proposed experiment

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New proposal submission

13. Proposal title *

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    *Mark only one oval.*
    - Yes
    - No

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Beam time request

15. Total number of days requested for experiment *

16. Is beam tuning time included in your request? *  
If it is not included, ATLAS operations typically assigns 1 day for stable or low-energy CARIBU beams and 2 days for in-flight or reaccelerated CARIBU beams  
Mark only one oval.

☐ Yes
☐ No

17. Is this one continuous run? *  
In other words, are all requested days consecutive?  
Mark only one oval.

☐ Yes Skip to question 18.
☐ No Skip to question 17.

Beam time splitting

18. Please specify desired splitting of days *  
For example, 2+3 indicates 5 days are split into 2 non-consecutive periods of 2 and 3 days

Beam specifications

19. Beam type *  
See [https://www.anl.gov/atlas/available-beams](https://www.anl.gov/atlas/available-beams) for more details. The special case of 14C is considered a "stable" beam.  
Mark only one oval.

☐ Stable Skip to question 19.
☐ In-flight Skip to question 22.
☐ reaccelerated CARIBU Skip to question 30.
☐ low-energy CARIBU Skip to question 36.

Stable beam(s) specifications  

20. Nuclide(s) *

21. Energy (MeV) *

22. Intensity (pnA) *

Skip to question 33.

In-flight beam specifications  
See [https://www.anl.gov/atlas/inflight-radioactive-beams](https://www.anl.gov/atlas/inflight-radioactive-beams) for a list of possible beams. Contact Calem Hoffman (crhoffman@anl.gov) for more details.

Primary beam(s) and production target(s) can be selected by ATLAS operations based on the specified secondary beam. However, if you know this information please specify below.
Please separate specifications of multiple beams with commas.

23. **In-flight (radioactive) beam species** *
   
   Example: 18F, 26Al

24. **Energy (MeV/u)** *

25. **Intensity (pps)** *

26. **Purity (%)**

**Primary beam and production target specifications**

Optional

27. **Primary beam species**

28. **Primary beam energy (MeV/u)**

29. **Primary beam intensity (pnA)**

30. **Production target**
   
   The standard gas cell is 3-cm long, uses HAVAR foils (each 1.9 mg/cm² thick) and is typically cooled with LN2. The standard Be foils have nominal thicknesses of 5 and 15 mg/cm². If other gases or foil materials/thicknesses are needed please select “Other” and describe.
   
   *Mark only one oval.*
   
   - [ ] Hydrogen gas
   - [ ] Deuterium gas
   - [ ] Helium-4 gas
   - [ ] Be foil
   - [ ] Other:

   *Skip to question 33.*

**Reaccelerated CARIBU beam specifications**

See [https://www.anl.gov/atlas/caribu-beams](https://www.anl.gov/atlas/caribu-beams) for a list of available beams. Please separate specifications of multiple beams with commas.

31. **Nuclide(s)** *
32. Reaccelerated energy (MeV) *

33. Intensity (pps) *

Skip to question 33.

Additional beam requirements

34. Beam sweeper *
   Not used in most experiments
   Mark only one oval.
   
   Yes
   No

35. Rebuncher/Debuncher *
   Not used in most experiments
   Mark only one oval.
   
   Yes
   No

Skip to question 35.

Experiment end station
Please select the detector system(s) or end station(s) to be used in your experiment (may select more than one)

36. Equipment *
   Check all that apply.
   
   ATSCAT (Large scattering facility)
   AGFA
   BPT (Trap Area)
   FMA
   Gammasphere
   HELIOS
   MUSIC (at Split-Pole Spectrometer beam line)
   Split-Pole Spectrometer
   X-array
   Other: 

ATLAS floorplan

If needed, use floor plan below to identify equipment location or go to
Skip to question 39.

**Low-Energy CARIBU beam specifications**
See [https://www.anl.gov/atlas/caribu-beams](https://www.anl.gov/atlas/caribu-beams) for a list of available beams. Please separate specifications of multiple beams with commas.

37. **Nuclide(s)***

38. **Intensity (pps)**

39. **Equipment/detector system(s)***
   
   Check all that apply.

- [ ] CPT
- [ ] EXO
- [ ] SATURN/X-array
- [ ] MTAS
- [ ] Other:

Skip to question 39.

**Target and beam stop specifications**
Form more information on available targets see the Center for Accelerator Target Science (CATS) website at [https://www.anl.gov/phy/center-for-accelerator-target-science](https://www.anl.gov/phy/center-for-accelerator-target-science) or contact John Greene (greene@anl.gov)

40. **Target material(s)***
41. Target thickness (mg/cm²)
    For solid targets

42. General target specifications
    Select all that apply for your required target
    Check all that apply.

☐ is readily available at CATS or ATLAS
☐ needs to be made at CATS (new target)
☐ needs enriched material
☐ is provided by user
☐ is radioactive
☐ is in gas form
☐ Other: ____________________________

43. Beam stop material(s) *
    Common beam stop materials: Al, Ta, Fe. Select all that apply.
    Check all that apply.

☐ Aluminium
☐ Iron
☐ Tantalum
☐ Other: ____________________________

Safety
Does your experiment require ...

44. 1. use of flammable gases? *
    Mark only one oval.

☐ Yes
☐ No

45. 2. lift of heavy equipment? *
    If the load weighs in excess of 50 lbs, is awkward or hard to handle or requires the use of crane, please select Yes
    Mark only one oval.

☐ Yes
☐ No

46. 3. use of electrical equipment from outside ATLAS? (exclude computers) *
    Mark only one oval.

☐ Yes  Skip to question 46.
☐ No   Skip to question 48.

External electrical equipment
Include any high voltage or high power electrical equipment that would be added to the existing experimental station or beam line
47. Describe electrical equipment *


48. Maximum voltage required (V)

Safety (cont.)
Does your experiment require ...

49. 4a. use of ATLAS owned calibration sources? 
   Select all that apply  
   Check all that apply.
   
   [ ] Gamma-ray sources (Example: 88Y, 56,57,60Co, 152Eu, 182Ta, 243Am with less than 10 micro-Ci)
   
   [ ] Alpha sources (Example: 228Th, GdCm with less than 10 micro-Ci)
   
   [ ] Fission source

50. 4b. radioactive materials from outside ATLAS? *
   Sources, targets, etc. 
   Mark only one oval.
   
   [ ] Yes  Skip to question 50.
   
   [ ] No  Skip to question 53.

External radioactive materials

51. Describe radioactive material(s) *
   In addition to the description, please indicate if material will be used as target, as source or for other purpose.


52. Type of ionizing radiation 
   Check all that apply.
   
   [ ] alpha
   
   [ ] beta
   
   [ ] gamma
   
   [ ] neutron

53. Total activity (Bq) 
   alpha + beta + gamma + neutron in Becquerel (1 Bq = 2.7e-11 Ci)
Safety (cont.)

Does your experiment require ...

54. 5. other unusual operations? *
   Mark only one oval.
   ○ Yes  Skip to question 54.
   ○ No   Skip to "Wrapping up."

Unusual operations

55. Describe unusual safety operations or requirements *


Wrapping up

Remember to send a your proposal via a separate email to atlas-proposals@anl.gov. We will confirm reception of your file within 3 days.

Please read before submitting

By clicking 'Submit' you certify that the information presented on this form is correct and that all of the collaborators listed on your proposal have agreed to participate in the experiment.

A copy of your responses will be emailed to the address you provided