ATLAS Proposal Form Worksheet

This worksheet shows all questions in the electronic ATLAS proposal form. Users may utilize this worksheet to gather the necessary information in preparation for submitting the electronic form.

This worksheet will not be accepted as a substitute for the electronic ATLAS proposal form, which can be filled and submitted in the link below: https://forms.gle/WkbGNAu9f3SVCYFF8

For question please contact Daniel Santiago-Gonzalez (dsg@anl.gov).

* Required

1. PI last name *

2. PI first and middle name *

Co-PI (alternate)

3. Co-PI email address

4. Co-PI last name

5. Co-PI first and middle name

Proposal background information

6. 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

7. Previous proposal title
8. **PI last name of the previous proposal**

9. **Previous proposal assigned number**
   Example: 1765

10. **PAC cycle of the previous proposal submission**
    *Mark only one oval.*
    - Mar/2019
    - Mar/2018
    - May/2017
    - Oct/2016
    - Nov/2015
    - Mar/2015
    - Sep/2014
    - Other: __________

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

   __________
   __________
   __________
   __________
   __________

**New proposal submission**

12. **Proposal title** *

   __________

13. **Is the proposed experiment part of a student thesis/dissertation?** *
    *Mark only one oval.*
    - Yes
    - No

**Beam time request**

14. **Total number of days requested for experiment** *

   __________
15. **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

16. **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**

17. **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**

18. **Beam type** *
   See [https://www.anl.gov/atlas/available-beams](https://www.anl.gov/atlas/available-beams) for more details. For long-lived radioactive beams extracted directly from the ECR2 or ECR3 ion sources, e.g. 14C, please select "Stable".
   *Mark only one oval.*
   - Stable  
     Skip to question 33.
   - In-flight  
     Skip to question 19.
   - reaccelerated CARIBU  
     Skip to question 28.
   - low-energy CARIBU  
     Skip to question 39.
   - No beam (using only radioactive sources e.g. 67Cu, 252Cf)  
     Skip to question 38.

**In-flight beam**

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 (crahoffman@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.

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

20. **Energy (MeV/u)** *
21. **Intensity (pps)** *
   Preferred format: $5 \times 10^4$

22. **Minimum purity (%)** *

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**Primary beam and production target specifications**

Optional

23. **Primary beam species**

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

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

26. **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-3 gas
   - [ ] Helium-4 gas
   - [ ] Be foil
   - [ ] Other:

27. **In addition to the in-flight and primary beam(s) above, do you need other stable beam(s)?** *
   *Mark only one oval.*
   - [ ] Yes  *Skip to question 33.*
   - [ ] No

*Skip to question 36.*

**Reaccelerated CARIBU beam specifications**

On-target specifications for reaccelerated CARIBU beam(s). 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.
28. CARIBU beam(s) *

29. Reaccelerated energy (MeV) *

30. Intensity (pps) *
   Preferred format: 5x10^4

31. Need the MRTOF device to suppress isobaric contaminants? *
   The Multi-Reflection Time-Of-Flight (MRTOF) device can significantly suppress isobaric contaminants but will reduce the beam intensity by a factor of 3 to 5.
   Mark only one oval.
   Yes
   No

32. In addition to the CARIBU beam(s) above, do you need other stable beam(s)? *
   Mark only one oval.
   Yes  Skip to question 33.
   No

Skip to question 36.

Stable beam
On-target specifications for beam(s) extracted directly from the ECR2 or ECR3 ion sources, including stable (e.g. 16O) and long-lived (e.g. 14C) nuclides. Please separate specifications of multiple beams with commas. For more information see https://www.anl.gov/atlas/stable-beams.

33. Nuclide(s) *

34. Energy (MeV) *

35. Intensity (pnA) *
   1 particle nano-Ampere (pnA) = 6.25x10^9 ions/sec

Skip to question 36.

Additional beam requirements
36. Beam sweeper *
   Not used in most experiments
   Mark only one oval.
   ☐ Yes
   ☐ No

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

Skip to question 38.

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

38. Equipment *
   Check all that apply.
   ☐ ATSCAT (Large scattering facility)
   ☐ AGFA
   ☐ BPT (Trap Area)
   ☐ FMA
   ☐ Gammasphere
   ☐ GRETINA
   ☐ 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
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.

39. **Nuclide(s)**

40. **Intensity (pps)**

41. **Need the MRTOF device to suppress isobaric contaminants?**
   The Multi-Reflection Time-Of-Flight (MRTOF) device can significantly suppress isobaric contaminants but will reduce the beam intensity by a factor of 3 to 5.
   
   *Mark only one oval.*
   
   - [ ] Yes
   - [ ] No
42. **Experiment end station** *
   Please select the detector system(s) or end station(s) to be used in your experiment (may select more than one)
   *Check all that apply.*
   - CPT
   - MTAS
   - SuN
   - X-array
   - Other:

   *Skip to question 43.*

**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)

43. **Target material(s)** *

44. **Target thickness** (mg/cm²)
   For solid targets

45. **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:

46. **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 ...
47. 1. use of flammable gases? *
   Mark only one oval.
   ○ Yes
   ○ No

48. 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

49. 3. use of electrical equipment from outside ATLAS? (exclude computers) *
   Mark only one oval.
   ○ Yes   Skip to question 50.
   ○ No    Skip to question 52.

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

50. Describe electrical equipment *


51. Maximum voltage required (V)


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

52. 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
53. **4b. radioactive materials from outside ATLAS?** *
   Sources, targets, etc.
   Mark only one oval.
   - Yes  
   - No  
   *Skip to question 54.*
   *Skip to question 57.*

**External radioactive materials**

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

55. **Type of ionizing radiation**
   Check all that apply.
   - alpha
   - beta
   - gamma
   - neutron

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

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

57. **5. other unusual operations?** *
   Mark only one oval.
   - Yes  
   - No  
   *Skip to question 58.*
   *Skip to "Reminder."*

**Unusual operations**
58. Describe unusual safety operations or requirements *

Reminder
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https://forms.gle/WkbGNAu9f3SVFYFF8