

1.) Regular Authorship

1.1.) Initial Qualification Authorship: Members of the sPHENIX collaboration will be added to the author list for physics papers based on performance of service to the collaboration as described below. This contribution should represent a significant fraction of the member's research work over the period of one year. Junior members who have completed an exceptional amount of service work in a shorter amount of time (consistent with the amount typically performed in a full year) may petition for early addition to the author list after six months.

1.1.1.) Service Work: A significant fraction of a collaborator's time on sPHENIX must have come from the following activities which are needed for the successful running of sPHENIX.

1. Detector construction and commissioning
2. Calibration
3. Data production and quality assurance
4. Software development of general utility
5. Mentoring junior people in the performance of the preceding tasks
6. Service in non-technical roles required for the functioning of the collaboration

1.1.2.) Diversity, Equity, & Inclusion Training: All collaborators wishing to become sPHENIX authors must complete the Diversity, Equity, & Inclusion training provided by the DEI Committee.

1.1.3.) Qualification for Current Members

1.1.3.1.) This section (1.1.3) applies to people who have been members of sPHENIX for at least one year at the time this policy is adopted. It also applies to junior people who have been members of the collaboration for at least 6 months.

1.1.3.2.) For each current member seeking inclusion in the initial author list, a report shall be submitted detailing the member's contribution(s) to the collaboration in the areas described in section 1.1.1. The individual member or their Institution Board member shall be responsible for submitting these reports.

1.1.3.3.) The collaboration leadership or their delegates shall review the reports and determine the initial list of authors.

1.1.3.4.) If a member's contributions are not sufficient for addition to the author list, collaboration leadership will help to suggest opportunities for service work based on a member's skills and interests. A new review can be requested after additional service work has been performed.

1.1.4.) Qualification for New Members

1.1.4.1.) As soon as possible after a new member joins sPHENIX, their supervisor should provide to the collaboration leadership the member's name, institution, career level, and start date to track their authorship eligibility.

1.1.4.2.) The new member should complete the DEI training as soon as possible after joining the collaboration.

1.1.4.3.) The new member should submit (or their Institution Board member should submit on their behalf) a report of their planned, ongoing, and completed contributions in the areas described in Section 1.1.1 at their initial joining of the collaboration, six months after joining the collaboration, and one year after joining the collaboration.

1.1.4.4.) After 1 year, Collaboration leadership will review the self-reported contributions and approve or deny a member's addition to the author list.

1.1.4.5.) For junior members who have done significant work, this review can happen as early as six months after joining sPHENIX.

1.1.4.6.) If a member's contributions are not sufficient for addition to the author list, collaboration leadership will help to suggest opportunities for service work based on a member's skills and interests. A new review can be requested after additional service work has been performed.

1.1.5.) Reports of service activities will be reviewed by an Authorship Committee. The members will be nominated by the Spokespersons and confirmed by the Institution Board. The committee shall have at least 5 members for the first year of its existence, and at least 3 members thereafter.

1.1.6.) At least two weeks before releasing a decision to deny authorship, the Authorship Committee shall notify the person at risk of being denied authorship, the relevant Institution Board representative, and the DEI Committee.

1.1.7.) A decision to deny authorship may be appealed, either by the person concerned or by another sPHENIX member on behalf of the person denied authorship. The following are the steps of the appeals process.

1.1.7.1.) The Authorship Committee revisits its decision. The person appealing may provide new or additional information relevant to the authorship decision.

1.1.7.2.) If the Authorship Committee confirms its decision to deny authorship, the Spokespersons shall appoint an independent committee, which shall study the case. No member of the Authorship Committee shall be part of this committee. Upon completion of the study, the committee is expected to make a recommendation on the appropriate course of action to the Spokespersons, who shall make the final decision. The committee shall provide a copy of its findings to the Authorship Committee, the DEI committee, the person who made the appeal, and the person whose authorship was denied.

1.2.) Maintenance of Authorship

1.2.1.) Reporting of sPHENIX Work: By July 1, 2023 and by February 1 in subsequent years, each member shall submit (or their Institution Board member shall submit on their behalf) a report describing the member's activities in the collaboration. Failure to submit this report may result in the member being blocked from shift signup.

1.2.2.) Shift Obligations: The shift obligation for each institution shall be directly proportional to the number of regular authors it has on papers to be published in a given year.

1.2.2.1.) The term "regular authors" excludes exceptional additions to the author list as described in Sec. 2.

1.2.2.2.) The constant of proportionality shall be defined by a person or group to be designated by the Institution Board.

1.2.2.3.) A mechanism may be instituted whereby groups of institutions may voluntarily pool their shift obligations or trade shift credits.

1.2.2.4.) A person who is affiliated with multiple institutions shall be treated as a fraction of an author (equal fractions for each institution concerned) in the calculation of the shift obligation.

1.2.2.5.) An institution that has fulfilled at least 75% of its nominal shift obligation shall be considered to be in compliance with this requirement and will be entitled to list its full set of authors.

1.2.2.6.) Prior to the beginning of each annual data-taking run, the Collaboration leadership shall inform each institution of its shift obligation. The Collaboration leadership shall also inform the whole collaboration of the equivalent shift obligation for a single person.

1.2.2.7.) At the end of each annual data-taking run, the Collaboration leadership shall inform each institution whether or not it is in compliance with the shift requirement.

1.2.2.8.) An institution that is out of compliance at the end of two consecutive annual data-taking runs shall be penalized by loss of regular authors, effective immediately. Let A be the number of authors that a given institution has requested and let F be the fraction of its shift obligation that has been fulfilled. An institution that is out of compliance with the shift obligation requirement shall be entitled to list a number of authors equal to $A \cdot F$ rounded to the nearest integer (with odd half integers rounded up). The author(s) to be removed shall be determined by the Institution Board representative for the institution in question. If the Institution Board representative does not name the authors to be removed in a timely manner, the Spokesperson(s) or their delegate(s) shall decide.

1.2.2.9.) No student or postdoc who has fulfilled their personal shift obligation (including alternative work under Sec. 1.2.2.10) shall be removed from the author list under Sec. 1.2.2.8. In such cases, other authors from the institution in question must be selected for removal.

1.2.2.10.) It may be the case that an institution (or an individual student or postdoc) is unable to fulfill their shift obligations in person at BNL. This includes people unable to perform shifts in person due to disability, prolonged illness, family care obligations, financial constraints, or problems obtaining permission to enter the United States or BNL. The Collaboration leadership must allow for alternative tasks, which may include remote shift work or service work of comparable value to the experiment. The Collaboration leadership shall determine how much time must be spent on the task to make up for a given amount of shift obligations. If the collaboration leadership is unable to provide suitable alternative tasks, the institution in question may petition the Institution Board for the shift obligation to be waived. A waiver can be granted by a majority of all possible votes in the Institution Board. An institution petitioning for such a waiver should have made a good-faith effort to figure out alternative tasks.

1.2.2.11.) An institution that fulfills at least 150% of its shift obligation in a given annual data-taking period may carry the excess shift credits (beyond 150% of the obligation) over into subsequent periods.

1.3.) Authorship After Departing sPHENIX: An sPHENIX author in good standing who leaves the Collaboration will continue to be an author for an additional 24 months.

1.4.) Authorship after the End of Data Taking

1.4.1.) After the end of data taking, any person who has been a regular author for at least 36 months will continue as an author indefinitely, whether or not they continue as a member of the collaboration.

1.4.2.) After the end of data taking, a person who has been a regular author for less than 36 months can continue to qualify as a regular author by spending a significant fraction of their

research time working on sPHENIX. Qualifying work can include physics analysis as well as service work under section 1.1.1. Reports should be filed following section 1.2.1. Once such a person reaches 36 months of regular authorship, section 1.4.1 shall apply.

1.5.) The author list shall be updated on the first day of each month, based on qualification reports submitted at least two weeks prior.

2.) Exceptional Cases

2.1.) Acknowledgement of Technical Personnel: Technical personnel who made a significant contribution to the construction of sPHENIX will be included as authors on the first 3 physics papers. A list of such people should be compiled by the Collaboration leadership.

2.2.) Ad Hoc Inclusion in Author List: There may be cases where a person has made an exceptional contribution to a particular analysis, but does not fulfill the regular conditions for authorship as described elsewhere in this policy. In such cases, the committee writing the paper may petition the Spokesperson(s) for the person in question to be added as an author just for the relevant paper. If the Spokesperson(s) wish to grant the request, they must inform the Institution Board at least 30 days before the submission of the relevant paper. If a majority of the votes cast in the Institution Board is against the exception, it shall not be granted. The Institution Board is not required to hold such a vote, but may do so in accordance with its rules. This provision cannot be used to add the same person to the author list more than once in any 12 month period.

2.3.) Contributors Who Departed Before the Start of Data Taking: People who made a significant contribution to the development of sPHENIX, but who left the collaboration before the start of data taking, will be included as authors on the first 3 physics papers. A list of such people shall be compiled by the Collaboration leadership.

2.4.) Self-Removal from the Author List: A person may remove themselves from the author list. Any self removal must take effect immediately and last at least 2 years. During that time, such a person cannot be added to the author list under Sec. 2.2 above.

2.5.) Involuntary Removal from the Author List: Upon the recommendation of the Spokesperson(s) and approval by a majority of all possible votes in the Institution Board, a person may be removed from the author list with immediate effect for misconduct. A person removed from the author list under this section can only be added back to the list upon recommendation of the Spokesperson(s) and approval by a majority of all possible votes in the Institution Board.

2.6.) Upon their own request, an author whose primary affiliation is with an institution that is not a member of sPHENIX can be listed in the author list under this non-member institution. It is the author's responsibility to keep the collaboration informed of any such situation and any subsequent changes to their affiliation. This provision does not affect any shift obligations the author may have. If the author wishes to maintain activities within sPHENIX, they must have a

nominal affiliation with a member institution. In such cases, the author's shift obligation (if any) is assigned to the institution(s) through which they maintain their sPHENIX membership.