

Report & Recommendations from the AAS Journals Future Task Force

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Introduction

The AAS Publications Board has been concerned for several years about a coming crisis with regard to maintaining our leadership among astronomy journals in a changing publishing landscape. Some scenarios related to our journals were discussed at a workshop in the Spring of 2013. However, it was clear that a more focused group was needed to look into possible changes to our subject matter and publishing structure. In March 2014 President David Helfand formed the Journals Future Task Force to address some of the problems and concerns about our journals. We note that no structural changes have been made to our journals and their operation since the AAS acquired them.

The charge to the Task Force asked us to:

- examine our titles and their content and recommend changes, if appropriate,
- examine the organization and operation of the journals to look for improvements and enhancements,
- examine policies to see if adjustments could lead to improvements,
- consider submission and processing procedures to make them optimal for authors,
- examine what similar journals are doing to assure we are publishing highly ranked journals,
- explore a wide range of new technologies and assess their potential for improving the journals for authors and readers.

The Task Force has addressed all of these points during four face-to-face meetings and with many exchanges via phone and email. The Task Force members all agree that the AAS journals are facing a number of serious issues, which could cause significant problems if not addressed soon. Some of the current problems with our journals include:

- a) the very large and growing size of the *Astrophysical Journal*, accounting for over 90% of articles submitted to AAS journals. This makes management of manuscripts increasingly difficult since they must be distributed between about 20 different SEs and editors.
- b) the much smaller and somewhat lower impact *Astronomical Journal*, currently less than 10% the size of the *ApJ* and continuing to decrease,

c) almost no differentiation in published subject matter between *AJ*, *ApJ*, *ApJ Letters*, and *ApJ Supplements*, leading authors to primarily select *ApJ* which is our highest impact journal,

d) *Astrophysical Journal Letters* has a somewhat lower impact factor than the Task Force believes it should have. The *Letters* should become our highest impact title by having rapid publication of not only short papers, but by including articles of high importance which may be longer than now permitted.

e) the growth of competitors, like *MNRAS* which now publishes more papers than *ApJ*, especially in cosmology.

The Task Force has concluded that it is extremely important to address these problems now. We need to recognize that by maintaining the status quo we not only face the challenges described above, but the AAS will miss out on an important opportunity to position our journals for even greater success in the future. The changes recommended should help our journals have even higher impact factors, more rapid publication times, more innovative features, and ongoing development to ensure long term success. This should help the AAS to lead in the field of scholarly publishing of astronomical research rather than hoping the status quo will see us through.

Background and History

None of our journals (*Astrophysical Journal (ApJ)*, *Astrophysical Journal Letters (ApJL)*, *Astrophysical Journal Supplements (ApJS)*, and *Astronomical Journal (AJ)*) was started by the AAS. Both the *ApJ* family and the *AJ* were given/transferred to the Society. The *Astronomical Journal*, founded by Benjamin A Gould in 1849, was given to the AAS in 1941. The *Astrophysical Journal* was started in 1895 by George E. Hale and James E. Keeler. During Subrahmanyan Chandrasekhar's editorship (1952-1971) the *ApJ Supplement Series* was started in 1953, primarily to publish extensive data sets which at that time consisted mainly of long, hand-typed tables. In 1958 Chandrasekhar also initiated the *Letters* as part of the main *ApJ*. However, to speed up their publication, in 1967 he moved the *Letters* into a separately bound part of the journal. Under his leadership the entire *ApJ* family was transferred to the AAS in 1972.

For many years each journal had a separate publication niche, with observational papers going primarily to the *AJ* and more astrophysical papers going to the *ApJ*. In the last decade this distinction has been completely blurred, with both journals publishing very similar content. This has resulted in the enormous growth of the *ApJ* at the expense of the now much smaller *AJ*. Further, because of the ease of publishing electronic data tables and many images, the *Supplements* are no longer required to fill the earlier need. Tables and figures can easily be published online and any other content can be transferred to our other titles. The Task Force is very concerned about the *Letters* which has a lower impact factor than the main *ApJ*. This needs to be quickly addressed. A recommendation of how to improve the *Letters* is given in the next section.

Recommendations:

Content Portfolio:

The current journals should be managed under a single AAS Publications umbrella. Authors will enter the AAS Publications site where they will find 5-8 subject corridors (the exact number will be determined during the transition and may vary in time as areas of active research change), some under the *ApJ* title and others under the *AJ* title. They will select the subject corridor which is most appropriate for their manuscript. The goal is to cleanly separate the topics published in each journal. Due to the huge difference in the present size of our journals, the Task Force believes that by specifying subject areas for each journal, the sizes of the two journals can be brought into better balance.

The Astrophysical Journal and the Astronomical Journal:

- The *ApJ* and *AJ* will each continue to exist as separate publications. Both are strong brands and valuable assets, but their content should be clearly differentiated.
- The division of topics covered by *ApJ* and *AJ* must be clear and logical in a way that makes sense to both authors and the editorial staff.
- The content of both titles will be broken into subject areas or “corridors” with little or no overlap between the two journals. Each corridor will be headed by a Lead Editor, rather than having a single editor for each journal. The content of each corridor and which areas are included in the two journals has been thoroughly discussed by the Task Force and with the Editors. Some suggested corridors are given below, but the final subject corridors should be determined during the transition. These corridors should be monitored as they may need to be adjusted over time.
- The division between each journal must not imply a hierarchy. Submission decisions should be based entirely on the content of the manuscript. Papers submitted to an inappropriate corridor may be transferred to an alternate one by the editor after discussion with the author.

Astrophysical Journals Letters:

- We recommend that *ApJL* should be renamed *Letters of the AAS* (or something similar) as it should include high impact papers from both *AJ* and *ApJ* corridors.
- Authors may submit directly to the *Letters*, but important and timely manuscripts may also be selected by any corridor editor (i.e. Lead Editor)
- There will no longer be a strict length limit, but long papers are probably not suitable for the *Letters*. The emphasis should be on significant, timely, and important papers.
- Extra support with new features, such as enhanced figures, will be provided to authors at no charge to increase the value and impact of the articles.
- We recommend that the *Letters* have the same author charges as papers to the *AJ* and *ApJ*.
- With the goal of improving the *Letters*’ importance, the Lead Editor of the new *Letters* should make every effort to seek out the most significant papers for publication.

Astrophysical Journal Supplements:

- After much discussion of the pros and cons of keeping the *ApJS*, the Task Force recommends that this title be retired. Its use as a place for long tables and large figure sets is no longer needed in the era of electronic publishing.
- Other content from *ApJS*, such as special issues, should be redirected to either *AJ* or *ApJ*, depending on their subject areas. Special issues can be created “virtually” using digital tagging methods without the need for a specific journal to host them.

AAS Highlights:

- This new publication will not be a refereed journal, but rather it will showcase important articles from either of our journals. Articles should be short (1-2 pages) and similar in concept to *Nature’s News & Views*.
- Journal editors may recommend suitable manuscripts to the *AAS Science Highlights* Editor.
- The articles will be written by the *AAS Science Highlights* Editor and be presented at a level for a broad scientific audience, especially AAS members.
- On submission of a paper, authors could check a box indicating that they would be open to having their article considered for an *AAS Highlights* publication.

Possible Subject Corridors:

The Task Force met with the current Editors and discussed how subject corridors might be assigned to each journal so that a good balance in volume of papers and their scientific impact could be achieved. The Task Force decided that the specific content of each corridor should be determined by the transition team. However, it was thought that divisions similar to those used by arXiv (astro-ph) might be appropriate (detailed contents of these divisions are given on the arXiv web site). Corridors might include: *ApJ*: cosmology & non-galactic astrophysics, *ApJ*: galaxies, *ApJ*: high energy astrophysical phenomena, *AJ*: earth, solar system, & planetary systems, *AJ*: solar and stellar astrophysics, and *AJ*: instrumentation, data, & methods. Some modifications of these categories will likely be needed.

Editorial Structure:

The Task Force believes there should be one Editor-in-Chief (EiC) who will oversee all of the journals, set policy, work with a branding team, and ensure our AAS journals publish the best possible science. This EiC will work closely with a team of Lead Editors, Science Editors, the Publications Board, the Highlights Editor, the Director of Publishing, and the AAS staff. In addition the EiC will coordinate with the AAS office to insure the financial model is appropriate and self-sustaining. In short, the EiC will be the CEO of all AAS journals. This may be a nearly full-time position. The EiC should identify a suitable Deputy Editor, who can act in case of absence or illness. The Deputy Editor could be one of the Lead Editors.

Under the EiC we recommend that Lead Editors (LEs) be appointed to head each of the subject corridors. These Lead Editors will manage the distribution of submitted manuscripts to a team of Scientific Editors working in his/her corridor. LEs should also handle the refereeing process for some

manuscripts. The current journal editors could be included in the team of Lead Editors, but some new LEs will need to be identified. The stipend of the Lead Editors should be slightly higher than that of the SEs to reflect their greater responsibility, although little additional time is expected to be required. Currently, Scientific Editors receive a stipend of \$15K/year. Lead Editors might be paid ~\$20K/year. The role of Lead Editor could be rotated among the SEs working in that corridor.

Operational Structure:

In order to efficiently manage the flow of manuscripts within AAS Publications by the restructured editorial team, the operational support also must be updated. Currently we have managing editors and other staff co-located with each of our journal editors. This is a very unbalanced work force, since two of the journals handle very few papers. Further, when someone is ill or away, there is little backup in these offices to handle papers. Hence, the Task Force recommends that we set up a single, centralized support team of about 3-4 Journal Associates. It would be most efficient to have this team co-located, probably in Tucson. However, it would be possible for one or more of them to work elsewhere since all of the materials they need are available online. Under either scenario, the staff will be overseen by the Director of Publishing. The Journal Associates will be cross-trained to handle manuscripts from all our journals. These Associates will handle the papers in much the same way as the current Managing Editors do, but they will be able to work on any journal submission, provide needed backup capability, and hence make better use of resources. This plan should provide a much more efficient operation benefiting authors while also costing the Society less.

In addition, The Director of Publishing and the AAS journals team should look into all aspects of our current workflow to see if they are optimal for efficient handling of manuscripts. Many of our current procedures date back to when almost everything was done on paper. We need to determine what changes would improve the process of receiving and handling papers.

Financial Considerations:

The Task Force was told by President Helfand that “any changes must be cognizant of fiscal realities (both current and future), but this should not be the Task Force’s main preoccupation”. Therefore, we spent little time talking about the finances of the journals, but listed here are some of our thoughts on the journals’ finances.

- Hiring an Editor-in-Chief (perhaps 80-100% time) will be a new but badly needed addition to our publishing portfolio.
- The proposed Lead Editors may add some expense depending on how many are appointed, but these people will serve a dual role as Scientific Editors. Their cost will be offset by no longer having half-time Editors for each journal.
- Hiring cross-trained Journal Associates, rather than having full-time Managing Editors at each journal location, will result in cost savings.

The Task Force spent some time discussing authors’ publication fees. It was unanimous that author charges should be lowered. Currently authors cover 65% of the cost of publishing our journals while

libraries pay only 35%. We all think that this ratio should be more balanced. We also discussed charging a “submission fee” (perhaps \$200) which would cover the cost of refereeing, even if the paper is rejected. This fee would be credited towards the eventual author’s cost for an accepted paper. Some Task Force members thought this submission fee should be the total fee for publication. Since financial issues are handled by the Council, we do not have a strong recommendation on this topic.

Considerations on Data Publishing:

With the drive by the US government to provide access to publicly funded research results, including the data underlying those results, the AAS needs to undertake additional efforts in the area of data publishing. The AAS has worked with AIP to complete a NSF-funded pilot program in data publishing which was focused mainly on understanding our communities’ needs and expectations. Our Journals Data Scientists, working with the Director of Publishing, Editors, IOP, the Publications Board, and external partners, should develop processes, policies, and procedures to enable data publishing appropriate for the AAS journals. Potential data-sharing options are discussed in the report on new features and technologies accompanying this document. Every effort should be made to find ways that are easy for authors and accessible to readers. It is not the intent of AAS data publishing to replace raw data archives, but rather to capture and share, in a format usable by other scientists, the data used to make scientific claims.

New Features and Technology

To maintain and expand its role as a leader in innovation, the Task Force recommends that the AAS journals:

- Adopt a policy of figure review, such that all graphics in AAS publications meet a minimum standard while select publications (e.g. *Letters of the AAS*) meet an even higher standard, facilitated by expert staff.
- Enable and offer staff support for interactivity, including movies, sound, and 3D object manipulation within publications. At present these features are supported by standard PDF format, but not often used.
- Actively pursue data linking through data DOIs for data sets used and produced in publications.
- Investigate and test new online editing and publishing tools. These tools allow for collaborative writing and commenting, and they offer web-native output formats, in addition to PDF.
- Appraise the value of the fast-developing field of annotation layers, and how annotation layers should be managed.

These ideas and recommendations are more fully presented in an accompanying stand-alone report by Alyssa Goodman and Josh Peek, and several are demonstrated online in a “Paper of the Future,” at <http://tinyurl.com/Paper-of-the-Future>.

Branding:

Branding is an essential source of clarity for any enterprise. Structural, title, and scope recommendations require commensurate attention to branding, which will help emphasize and clarify these changes in the market. To succeed, the AAS needs to clearly differentiate its two major brands – *ApJ* and *AJ* – while fostering a new overarching brand for AAS Publications that can create a healthy environment in which new brands can grow and flourish. In addition, major sources of brand confusion need to be eliminated in presentation layers, legal claims, and infrastructure elements. A full report is attached in a stand-alone document by Kent Anderson.

Next Steps

If the Council approves this plan, a Transition Team should be appointed who will work closely with the Director of Publishing and other AAS staff to implement the needed changes. During the transition, the individual journal offices should continue to handle papers as usual. Below are suggested steps, some of which may be done simultaneously. We believe that the steps needed to move entirely to the new system may take up to two years.

- Provide information to AAS members explaining the changes which are coming to our journals, including why, when, and how authors and readers will start using the new system.
- Appoint a Transition Team whose job would be to guide the steps of the proposed changes.
- Appoint a Transition Editor-in-Chief to work with and help guide the Transition Team.
- Finalize which subject areas are to be included in each journal's subject corridors.
- Begin making the needed changes and branding recommendations presented in Kent Anderson's report.
- Change the manuscript submission web site to a single AAS Publications portal where authors will select the appropriate subject corridor for their manuscripts. Authors will also be able to specify if they want their full submitted article or just the abstract posted on line.
- Hire Journal Associates to handle papers at the "back end" (work now done by Managing Editors).
- Recruit appropriate Lead Editors for each subject corridor.
- Assign our existing Scientific Editors to work under specific Lead Editors, and add new SEs if needed. We may want to include more foreign SEs, given the high percentage of international authors.
- Goals should be set for each journal in terms of submission, readership, impact factors, etc.
- Begin experimenting with some new features as described by Goodman and Peek. First steps might include optional video abstracts, 3-D figures, etc.
- Allow some overlap period between old and new ways of handling manuscripts so that no papers are lost in the system.
- Finally, transfer all of the work to the new team of Editor-in-Chief, Lead Editors, Scientific Editors, and Journal Associates working on the production of manuscripts.

Some Future Actions

- In order to be sure the new system is effectively serving both authors and readers, we recommend annual reviews be undertaken. The use of corridors should be monitored to see if changes, additions, or subtractions of topics covered need to be made.
- Particular attention should be paid to the *AJ* to determine if the allocation of new subject categories has been effective in raising its authorship and impact factor. If this has not happened within a few years, we recommend that all subject corridors be merged under a single journal title.
- Communication with the AAS community and authors should be carried out to explain any further changes.
- Marketing and outreach plans should include AAS members, domestic and foreign authors, and subscribers.