



Title and Abstract Fields ([Metadata](#))

This help document explains the format of metadata fields for arXiv submissions — it explains how to fill out the various fields on the web submission form. The possible information fields are:

- **Title:** *required*
- **Authors:** *required*
- **Abstract:** *required*
- **Comments:** optional, but recommended
- **Report-no:** *required (when supplied by author's institution)*
- **Category:** depends on archive
- **Journal-ref:** reserved for publication info
- **DOI:** reserved publication DOI
- **MSC-class:** math archives only
- **ACM-class:** required for cs archives only

Please read our FAQ page "[Submissions in languages other than English and multiple language submissions](#)" if your submission is in a language other than English or includes a version in a language other than English.

Bad character(s)

Our metadata fields only accept ASCII input. Unicode characters should be converted to its $T_E X$ equivalent (either through [MathJax](#) entry or for proper names use the appropriate [accents](#)).

A common problem experienced during submission, *Bad character(s) in field...*, is reporting UTF characters being entered into a field that expects ASCII character entry. This is usually caused by the UTF characters being copied from your pdf viewer and then pasted as such during this step, rather than being entered as ASCII text. The most common culprits are the curved quotation marks (for example “ and ” instead of keyboard entry), long-hyphens (— or –), and fi/ff copied as a single character.

If you can't figure it out, type it out.

Information Fields

Title: *required*

- Do not use all uppercase letters.
- Do not use unicode characters.
- Some MathJax.
- Expand out $T_E X$ macros that are mystifying, e.g. "Nonlinear Sigma Models" instead of "\nls m".
- Check your spelling.
- Certain $T_E X$ [accent commands](#) may be used in this field.
- References to other articles in other archives should be given in the standard `arXiv:arch-ive/YYYYNNN` or `arXiv:YYMM.NNNN(N)` format so that our Web interface can turn the reference into a link to the article's abstract.

Authors: *required*

Policy Notes:

- It is a violation of our policies to misrepresent your identity or organizational affiliation. Claimed affiliation should be current in the conventional sense: e.g., physical presence, funding, e-mail address, etc. Misrepresentation of identity or affiliation, for any reason, is possible grounds for immediate and permanent suspension.
- It is the responsibility of the submitter to ensure that all authors [consent to the article being submitted](#).
- It is the responsibility of the submitter to ensure that any author's information is correct prior to submission.
- Anonymous submissions are not accepted. Complete, and accurate author information is required.
 - For named collaborations, it is acceptable to only use the collaboration name within the metadata, however a complete list of all authors and their affiliations must be contained in the full printed text.

Usage:

- In order to automate indexing and searching, it is required that authors to be listed in a canonical format. Names should be given in the order: Firstname Lastname or Firstname Middlename Lastname (where Lastname is your family name).
- Include the names of *all authors* instead of truncating the list with "*et al.*". This is necessary to support search and indexing. Multiple author names should be separated with a comma,

E. L. Grossman, T. Zhou, E. Ben-Naim

or with the word "and",

Michael Dine, Yosef Nir and Yuri Shirman

- First names and middle names may be abbreviated with just an initial. Initials should be followed by a period and then a space. Do not use all uppercase letters for names.
- Do not enter a name that contains a comma or the word 'and'. If you must include 'Jr.' or similar suffix to a name then they must not be separated from the main name by a comma, enter simply **Bill Gates Jr** or **Fred Bloggs IV**. Names such as **John von Neumann** are entered exactly as illustrated.
- Affiliations must be placed within parentheses. Do not enter full mailing address, as these are not needed in our metadata. If desired, at most, include a city and country (no zip codes, postal codes, or street addresses). If you have several authors from the same institution, you can use a footnote style for the affiliations. Here is an example (be sure to do it in the form presented here, including all parentheses, and using numbers and not letters):

```
Authors: Author One (1), Author Two (1 and 2), Author Three (2)
        ((1) Institution One, (2) Institution Two)
```

- If the authors constitute a named collaboration, the collaboration name should be used in addition to all authors. Preferred formats are:

```
Authors: ABCD Collaboration: Author One, Author Two, Author Three
```

which is taken to mean that the article was written by the ABCD Collaboration which is comprised of Author One, Author Two and Author Three.

```
Authors: Author One, Author Two, for the ABCD Collaboration
```

which is taken to mean that the article was written by Author One and Author Two, on behalf of the ABCD Collaboration.

```
Authors: Author One, Author Two (the ABCD Collaboration)
```

which is taken to mean that the article was written by Author One and Author Two, who are members of the ABCD Collaboration. This format has the disadvantage that the collaboration name will not be linked to a search.

- Roles — such as **editor**, or **appendix author** — *may not* be indicated within the Authors field, rather roles should be indicated within the **Comments** field. Their names should be included in the Authors list. Such as:

```
Authors: Author One, Author Two, Author Three
Comments: Appendix by Author Two
```

- Certain TeX **accent commands** may be used in this field.

Abstract: *required*

Abstracts are automatically processed into the mailings, so it is important to adhere to the formatting rules.

Carriage returns will be stripped unless they are followed by leading white spaces. So if you want a new paragraph or a table of contents, be sure to indent the lines after the carriage return. When the abstract is formatted for email announcement, it will be wrapped to 80 characters.

- Do not include the word "Abstract".
- Some TeX commands are supported via [MathJax](#).
- As with the title, expand out opaque TeX macros. Including TeX formatting commands such as `\,` (backslash comma) and `\` (backslash space) makes it difficult for people to read. Please omit these TeX-isms. Also omit font commands such as `\em` or `\it`, as these will not be processed into the display. Additionally, TeX formatting commands for names will not be processed, and unicode character entry is not supported.
- Do not start lines with whitespace (spaces, tabs, etc.) unless you are trying to prevent our automatic line wrapping. You might choose to use leading whitespace if for example your abstract is a table of contents. Avoid unnecessary blank lines.
- Keep it short — abstracts longer than 1920 characters will not be accepted; abridge your abstract if necessary.
- References to other articles in other archives should be given in the standard `arXiv:arch-ive/YYYYNNN` or `arXiv:YYMM.NNNN(N)` format so that our Web interface can turn the reference into a link to the article's abstract.
- Certain TeX [accent commands](#) may be used in this field.

Comments:

- Indicate number of pages and number of figures. If desired, include TeX commands are supported via [MathJax](#).
- Anonymous FTP and World Wide Web locations should be given in the standard Uniform Resource Locator (URL) format. We automatically convert these into an active link reading "this ftp URL" and an http URL into a link reading "this http URL" (try for a grammatically sensible substitution). The location of related files or information should be given here. **Also, you should add a space to separate any periods or text following a URL from the URL itself, so that it is not interpreted as part of the URL.** For example, the comment

```
"for associated mpeg file, see http://myhost.domain/file.mpg"
```

when accessed via the archive WWW interface views as "for associated mpeg file, see \<this URL>".

- References to other articles in other archives should be given in the standard `arXiv:arch-ive/YYYYNNN` or `arXiv:YYMM.NNNN(N)` format so that our Web interface can turn the reference into a link to the article's abstract.
- This is the proper field for "to be published in" or "submitted to" information, including inclusion in conference proceedings. Please note that such entries will be frozen into this version, and is [not editable](#) after announcement.
- This is the proper field for author roles, such as "Appendix by" or "Editor" information.
- If this is a replacement, indicate the nature of the replacement and the severity of the changes so readers will know why it was replaced. You may wish to still include your original comments (e.g.

readers will know why it was replaced. You may wish to still include your original comments (e.g. number of pages), because the comments field is not cumulative.

- **Do not put copyright statements in the comments, put them on the front page of the article.** Even there, do not put any copyright or license statement that contradicts the license you grant arXiv on submission! For more information see our [descriptions of available licenses](#).
- Certain $T_E X$ [accent commands](#) may be used in this field.

Report-no: *required only when supplied by author's institution*

- Enter your institution's locally assigned publication number.
- Do not put any other information in this field.
- Example: `Report-no: EFI-94-11` .

Category:

Each arXiv article has a primary category and may also have one or more cross-lists to other categories. The categories control what mailings an article is announced in, and also provide a way to limit searches to subsets of arXiv.

Some categories have just an archive name, such as `hep-th` or `quant-ph` . Others are broken into subject classes to give finer subject granularity:

- For the `'astro-ph'` archive see [list of astro-ph subject classes](#).
- For the `'cond-mat'` archive see [list of cond-mat subject classes](#).
- For the `'physics'` archive see [list of physics subject classes](#).
- For the `'math'` archive see [list of math subject classes](#).
- For the `'nlin'` archive see [list of nlin subject classes](#).
- For the `'cs'` archive see [list of cs subject classes](#).
- For the `'q-bio'` archive see [list of q-bio subject classes](#).
- For the `'q-fin'` archive see [list of q-fin subject classes](#).
- For the `'stat'` archive see [list of stat subject classes](#).
- For the `'eess'` archive see [list of eess subject classes](#).
- For the `'econ'` archive see [list of econ subject classes](#).

Journal-ref:

- This field is **only** for a full bibliographic reference if the article has already appeared in a journal or a proceedings.
- Indicate the volume number, year, and page number (or page range).
- If your submission has not appeared yet, but you would still like to indicate where it will be published, use the [Comments:](#) field. Please note that the Comments field can only be updated by submitting a [replacement](#).

- If there are multiple full bibliographic references associated with the paper, for example the original and an erratum, then separate them with a semicolon and a space, e.g.
`J.Hasty Results 1 (2008) 1-9; Erratum: J.Hasty Results 2 (2008) 1-2`
- In most cases, submissions are not yet published, and so `Journal-ref` information is not available. A facility is provided for you to [add a journal reference](#) to your previously submitted article at a later date.
- Do not put URLs into this field, as they will not be converted into links.

DOI:

- This field is **only** for a DOI ([Digital Object Identifier](#)) that resolves (links) to another version of the article, in a journal for example.
- DOIs have the form `10.1016/S0550-3213(01)00405-9`
- If there are multiple DOIs associated with an article, separate them with a space.
- Do not include any other information in this field. In most cases, submissions are not yet published, and so `DOI` information will be added by the author at a later date. A facility is provided for [adding a Journal-ref and DOI](#) to a previously submitted article.

MSC-class:

- For submissions to the math archive, this field is used to indicate the mathematical classification code according to the [Mathematics Subject Classification](#). Here is an example

```
MSC-class: 14J60 (Primary) 14F05, 14J26 (Secondary)
```

Put the "Primary" and "Secondary" keywords in parentheses. If there is only a Primary classification, the "Primary" keyword is optional. Separate multiple classification keys with commas.

ACM-class:

- For submissions to the cs archive, this field is used to indicate the classification code according to the [ACM Computing Classification System](#) (or see this [overview](#)). Here is an example

```
ACM-class: F.2.2; I.2.7
```

(Separate multiple classifications by a semicolon and a space.)

Are you an author of this paper?

- Although arXiv encourages authors to submit their own articles, some articles may be submitted by [third parties](#) (co-workers, administrative assistants, overlay journals, etc.). Prior authorization is required for such submissions. If you are not the author this work you must [contact](#) arXiv administrators for permission. Submissions without prior authorization will be removed.
- The submitter of an article is automatically registered as an *owner* of the article, someone who has

authorization to make changes to the article, such as replacing it or adding a cross-reference. Other people can become owners if they supply the paper password, or request ownership. See our [authority records](#) help page for more information.

- When someone is registered as an *owner* of an article, they have a chance to specify if they are also an *author* — to get all of their rights and privileges, authors of arXiv articles should take ownership of their articles and designate themselves as an author.
- Select *yes* if you are a listed author of the article you are submitting and *no* otherwise.

Note on $\text{La}T_{E}X$ accent commands:

Two methods are supported for entering accented characters into arXiv.

1. If your browser supports Unicode and you have the appropriate input method enabled on your computer, you can type them directly, and they will be converted into their $\text{La}T_{E}X$ syntax.
2. You can enter accented characters using a subset of $\text{La}T_{E}X$ syntax. arXiv's subset of $\text{La}T_{E}X$ supports many of the ways accented characters can be written in $\text{La}T_{E}X$, however, it only accepts characters from ISO Latin 1 (which is a subset of Unicode that can be represented as a single byte in UTF-8).

Here are the $\text{La}T_{E}X$ accents commands that can be used in the Title and Authors fields.

Ä \A	ä \a	Á \A	á \a	Â \A	â \a	Ã \=A
ā \=a	Â \^A	â \^a	À \`A	à \`a	Ą \k{A}	ą \k{a}
Å \r{A}	å \r{a}	Ǻ \u{A}	ǻ \u{a}	Ǽ \v{A}	ǽ \v{a}	Ǿ \~A
ã \~a	Ć \C	ć \c	Ĉ \.C	ĉ \.c	Ċ \^C	ċ \^c
Ç \c{C}	ç \c{c}	Č \w{C}	č \w{c}	Ǿ \w{D}	ǿ \w{d}	Ě \E
ě \e	É \E	é \e	Ê \.E	ê \.e	Ē \=E	ē \=e
Ê \^E	ê \^e	È \`E	è \`e	Ę \c{E}	ę \c{e}	Ė \k{E}
ę \k{e}	Ě \u{E}	ě \u{e}	Ě \v{E}	ě \v{e}	Ġ \.G	ġ \.g
Ĝ \^G	ĝ \^g	Ģ \c{G}	ģ \c{g}	Ǻ \u{G}	ǻ \u{g}	Ǽ \w{G}
ǽ \w{g}	Ĥ \^H	ĥ \^h	Ǻ \w{H}	ǻ \w{h}	İ \I	ı \i
Í \I	í \i	Ĳ \.I	Ĳ \.i	Ĵ \=I	Ĵ \=i	Î \V
î \V	ì \`I	Ĳ \k{I}	Ĳ \k{i}	Ǻ \u{I}	ǻ \u{i}	Ǽ \w{I}
ǽ \w{i}	Ĵ \~I	Ĵ \~i	Ĵ \V	Ĵ \V	Ķ \c{K}	ķ \c{k}
Ķ \w{K}	ķ \w{k}	Ĺ \L	ĺ \l	Ł \c{L}	ł \c{l}	Ľ \w{L}
ľ \w{l}	Ń \N	ń \n	Ņ \c{N}	ņ \c{n}	Ñ \w{N}	ñ \w{n}

Ñ \~N	ñ \~n	Ö \"O	ö \"o	Ó \"O	ó \"o	Ô \.O
ô \.o	Õ \=O	ō \=o	Ô \^O	ô \^o	Ò \"`O	ò \"`o
Õ \H{O}	õ \H{o}	Œ \k{O}	œ \k{o}	Ǫ \u{O}	ǫ \u{o}	Ǿ \v{O}
ǿ \v{o}	Ǿ \~O	ō \~o	Ř \"R	ř \"r	Ṛ \c{R}	ṛ \c{r}
Ř \v{R}	ř \v{r}	Ś \"S	ś \"s	Ŝ \^S	ŝ \^s	Ŝ \c{S}
ŝ \c{s}	Š \v{S}	š \v{s}	Ṭ \c{T}	ṭ \c{t}	Ṭ \v{T}	ṭ \v{t}
Ü \"U	ü \"u	Ú \"U	ú \"u	Ū \=U	ū \=u	Û \^U
û \^u	Û \"`U	ù \"`u	Ŭ \H{U}	ŭ \H{u}	Ṳ \k{U}	ṳ \k{u}
Ŭ \r{U}	ŭ \r{u}	Ǫ \u{U}	ǫ \u{u}	Ǫ \v{U}	ǫ \v{u}	Ǿ \~U
ũ \~u	Ŵ \^W	ŵ \^w	Ÿ \"Y	ÿ \"y	Ý \"Y	ý \"y
Ȳ \=Y	ȳ \=y	Ȳ \^Y	ȳ \^y	Ž \"Z	ž \"z	Ž \.Z
ž \.z	Ž \v{Z}	ž \v{z}	Ǻ {\aa}	Ǻ {\AA}	æ {\ae}	Æ {\AE}
Đ {\DH}	đ {\dh}	đ {\dj}	Đ {\DJ}	ð {\eth}	Đ {\ETH}	ı {\i}
ł {\l}	Ł {\L}	ŋ {\ng}	Ŋ {\NG}	Ø {\O}	ø {\o}	œ {\oe}
Œ {\OE}	ß {\ss}	þ {\th}	Þ {\TH}			

Examples

The following are examples of how correctly completed metadata might appear in plain text email announcements:

Example 1

```
Title: Recent Seminal Results in the Theory of Everything
That I Have Been Working on Recently
Authors: H.Z. Jarvey (Eastern Fundamental Institute)
Comments: 12 pages, 3 Postscript figures, uses rotate.sty
Report-no: EFI-94-11
Journal-ref: Obsc. Unr. Jour. 51 (1994) 87-95

This paper explains everything about everything, thereby making
redundant all other papers in the field. Applications to text
compression should be obvious.
```

Example 2

Title: An interesting **new** theorem **in** algebraic geometry
Authors: Jane B. Jones, John F. Jones, and Steven Q. Smith
Comments: AMS-LaTeX v1.2, 24 pages **with** 3 figures
Report-no: University of Northern Nowhere preprint UNN-MATH-96-04
Subj-**class**: Algebraic Geometry
MSC-**class**: 14J30 (Primary); 32H10 (Secondary)

We extend the results of our previous papers **in** order to prove some well-known conjectures **in** differentio-algebraic geometric functional analysis.

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