

# L<sup>A</sup>T<sub>E</sub>X Class for *Association for Computing Machinery*\*

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## Abstract

This package provides a class for typesetting publications of Association for Computing Machinery.

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# 1 Introduction

Association for Computing Machinery is the world's largest educational and scientific computing society, which delivers resources that advance computing as a science and a profession<sup>1</sup>. It was one of the early adopters of  $\text{\TeX}$  for its typesetting.

It provided several different classes for a number of journal and conference proceedings. Unfortunately during the years since these classes were written, the code was patched many times, and the support of the different versions of the classes became difficult.

This package provides the uniform interface for all ACM publications. It is intended to replace all different classes and packages and provide an up to date  $\text{\LaTeX}$  package.

The package uses only free  $\text{\TeX}$  packages and fonts included in  $\text{\TeX}$ Live, Mik $\text{\TeX}$  and other popular  $\text{\TeX}$  distributions. It is intended to be published in these distributions itself, which minimizes users' efforts in the installation and support of the package.

I am grateful to Matthew Fluet, John Owens, Craig Rodkin, Bernard Rous, David Shamma, Stephen Spencer and many others for their invaluable help.

The development version of the package is available at <https://github.com/borisveytsman/acmart>.

## 2 User's guide

### 2.1 Installation

Most probably, you already have this package installed in your favorite  $\text{\TeX}$  distribution; if not, you may want to upgrade. You may need to upgrade it anyway since the package uses a number relatively recent packages, especially the ones related to the fonts.

If you decide to install the package yourself, follow the standard rules:

1. Run `latex on acmart.ins`. This will produce the file `acmart.cls`.
2. Put the file `acmart.cls` and the bibliography files `*.bst` to the places where  $\text{\LaTeX}$  can find them (see [1] or the documentation for your  $\text{\TeX}$  system).
3. Update the database of file names. Again, see [1] or the documentation for your  $\text{\TeX}$  system for the system-specific details.
4. The file `acmart.pdf` provides the documentation for the package (this is the file you are probably reading now).

As an alternative to items 2 and 3 you can just put the files in the working directory where your `.tex` file is.

The class uses a number of other packages. They are included in all major  $\text{\TeX}$  distributions ( $\text{\TeX}$ Live, Mac $\text{\TeX}$ , Mik $\text{\TeX}$ ) of 2015 and later, so you probably have them installed. Just in case here is the list of these packages:

- *algorithm2e*, <http://www.ctan.org/pkg/algorithm2e>

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<sup>1</sup><http://www.acm.org/>

- *amscs*, <http://www.ctan.org/pkg/amscs>
- *amsfonts*, <http://www.ctan.org/pkg/amsfonts>
- *amsmath*, <http://www.ctan.org/pkg/amsmath>
- *booktabs*, <http://www.ctan.org/pkg/booktabs>
- *caption*, <http://www.ctan.org/pkg/caption>
- *comment*, <http://www.ctan.org/pkg/comment>
- *environ*, <http://www.ctan.org/pkg/environ>
- *fancyhdr*, <http://www.ctan.org/pkg/fancyhdr>
- *float*, <http://www.ctan.org/pkg/float>
- *fontaxes*, <http://www.ctan.org/pkg/fontaxes>
- *geometry*, <http://www.ctan.org/pkg/geometry>
- *graphics*, <http://www.ctan.org/pkg/graphics>
- *hyperref*, <http://www.ctan.org/pkg/hyperref>
- *ifluatex*, <http://www.ctan.org/pkg/ifluatex>
- *ifxetex*, <http://www.ctan.org/pkg/ifxetex>
- *inconsolata*, <http://www.ctan.org/pkg/inconsolata>
- *kastrup*, <http://www.ctan.org/pkg/kastrup>
- *libertine*, <http://www.ctan.org/pkg/libertine>
- *manyfoot*, <http://www.ctan.org/pkg/manyfoot>
- *microtype*, <http://www.ctan.org/pkg/microtype>
- *mptopdf*, <http://www.ctan.org/pkg/mptopdf>
- *ms*, <http://www.ctan.org/pkg/ms>
- *mweights*, <http://www.ctan.org/pkg/mweights>
- *natbib*, <http://www.ctan.org/pkg/natbib>
- *nccfoots*, <http://www.ctan.org/pkg/nccfoots>
- *newtx*, <http://www.ctan.org/pkg/newtx>
- *oberdiek*, <http://www.ctan.org/pkg/oberdiek>
- *pdftex-def*, <http://www.ctan.org/pkg/pdftex-def>

- *resize*, <http://www.ctan.org/pkg/resize>
- *setspace*, <http://www.ctan.org/pkg/setspace>
- *tools*, <http://www.ctan.org/pkg/tools>
- *totpages*, <http://www.ctan.org/pkg/totpages>
- *trimspaces*, <http://www.ctan.org/pkg/trimspaces>
- *upquote*, <http://www.ctan.org/pkg/upquote>
- *url*, <http://www.ctan.org/pkg/url>
- *xcolor*, <http://www.ctan.org/pkg/xcolor>
- *xkeyval*, <http://www.ctan.org/pkg/xkeyval>

## 2.2 Invocation and options

To use the class put in the preamble of your document

```
\documentclass[<options>]{acmart}
```

There are several options corresponding to the type of the document and its general appearance. They are described below. Generally speaking, the options have key=value forms, for example

```
\documentclass[format=acmsmall, screen=true, review=false]{acmart}
```

The option `format` describes the format of the output. There are several possible values for this option, for example,

```
\documentclass[format=acmtog]{acmart}
```

Actually the words `format=` can be omitted, e.g.,

```
\documentclass[acmtog, review=false]{acmart}
```

The possible formats are listed in Table 1. Note that formats starting with `acm` are intended for journals and transactions, while formats starting with `sig` are intended for proceedings published as books.

There are several Boolean options which can take true or false values. They are listed in Table 2. The words `=true` can be omitted when setting the Boolean option, so instead of `screen=true` one can write just `screen`, for example,

```
\documentclass[acmsmall, screen, review]{acmart}
```

Table 1: The possible values for the format option

Value	Meaning
manuscript	A manuscript. This is the default
acmsmall	Small single column format, used for CIE, CSUR, JACM, JDIQ, JEA, JERIC, JETC, TAAS, TACCESS, TACO, TALG, TALLIP (formerly TALIP), TCPS, TEAC, TECS, TIIS, TISSEC, TIST, TKDD, TMIS, TOCE, TOCHI, TOCL, TOCS, TOCT, TODAES, TODS, TOIS, TOIT, TOMACS, TOMM (formerly TOMCCAP), TOMPECS, TOMS, TOPC, TOPLAS, TOPS, TOS, TOSEM, TOSN, TRET, TSAS, TSC, TSLP, TWEB.
acmlarge	Large single column format, used for JOCCH, TAP
acmtog	Large double column format, used for TOG
sigconf	Proceedings format for most of ACM conferences (with the exceptions listed below)
siggraph	Proceedings format for SIGGRAPH and SIGGRAPH Asia conferences, published in ACM Transactions on Graphics journal issues
sigplan	Proceedings format for SIGPLAN conferences
sigchi	Proceedings format for SIGCHI conferences
sigchi-a	Format for SIGCHI extended abstract

The option `review` is useful when combined with the `manuscript` format option: it provides a version suitable for reviewers and copyeditors.

The option `screen` may in the future involve additional features suitable for on-screen versions of the articles.

The option `natbib` is used when the corresponding BibTeX style is based on `natbib`.

The option `anonymous` is used for anonymous review process: all author information becomes obscured.

## 2.3 Topmatter commands

A number of commands set up *top matter* information, or, in the computer science jargon, *metadata* for the article. They establish the publication name, article title, authors,

Table 2: Boolean options

Option	Default	Meaning
review	false	A review version: lines are numbered, hyperlinks are colored
screen	false	A screen version: hyperlinks are colored
natbib	false	Whether to use <code>natbib</code> package (see Section 2.9)
anonymous	false	Whether to make author(s) anonymous
authorversion	false	Whether to generate a special version for authors' personal use or posting (see Section 2.3)

doi and other data. Some of these commands, like `\title` or `\author`, should be put by the authors. Others, like `\acmVolume` or `\acmDOI`—by the editors. Below we describe these commands and mention who should issue them. These macros should be used *before* the `\maketitle` command. Note that in the previous versions of ACM classes some of these commands should be used before `\maketitle`, and some after it. Now they all must be used before `\maketitle`.

The class internally loads `amsart` class, so many top matter commands are inherited from `amsart` [2].

`\acmJournal` The macro `\acmJournal{<shortName>}` sets the name of the journal or transaction for journals and transactions. The argument is the short name of the publication *in uppercase*, for example,

```
\acmJournal{TOMS}
```

The currently recognized journals are listed in Table 3. Note that conference proceedings published in *book* form do not set this macro.

It is expected that this command is inserted by the author of the manuscript when she decides to which journal to submit the manuscript.

`\acmConference` The macro `\acmConference[<short name>]{<name>}{<date>}{<venue>}` is used for conference proceedings published in the book form. The arguments are the following:

**short name:** the abbreviated name of the conference (optional).

**name:** the name of the conference *or* the name of the book as set by the editor.

**date:** the date(s) of the conference.

**venue:** the place of the conference.

Examples:

```
\acmConference[TD'15]{Technical Data Conference}{November
12--16}{Dallas, TX, USA}
\acmConference{SA'15 Art Papers}{November 02--06, 2015}{Kobe, Japan}
```

Normally this command is entered either by the editor or by the typesetter.

`\title` The command `\title`, as in `amsart` class, has two arguments: one optional, and one mandatory:

```
\title[<ShortTitle>]{<FullTitle>}
```

The mandatory argument is the full title of the article. The optional argument, if present, defines the shorter version of the title for running heads. If the optional argument is absent, the full title is used instead.

It is expected that this command is inserted by the author of the manuscript.

`\subtitle` Besides title, ACM classes allow subtitle, set with the `\subtitle{<subtitle>}` macro.

`\author` The interface for specifying the authors and their affiliations is close the the one of `amsart` [3] (and different from the standard  $\text{\LaTeX}$ ). For each author a separate command

`\affiliation`

`\email`

Table 3: ACM publications and arguments of the \acmJournal command

Abbreviation	Publication
CIE	ACM Computers in Entertainment
CSUR	ACM Computing Surveys
JACM	Journal of the ACM
JDIQ	ACM Journal of Data and Information Quality
JEA	ACM Journal of Experimental Algorithmics
JERIC	ACM Journal of Educational Resources in Computing
JETC	ACM Journal on Emerging Technologies in Computing Systems
JOCCH	ACM Journal on Computing and Cultural Heritage
TAAS	ACM Transactions on Autonomous and Adaptive Systems
TACCESS	ACM Transactions on Accessible Computing
TACO	ACM Transactions on Architecture and Code Optimization
TALG	ACM Transactions on Algorithms
TALLIP	ACM Transactions on Asian and Low-Resource Language Information Processing
TAP	ACM Transactions on Applied Perception
TCPS	ACM Transactions on Cyber-Physical Systems
TEAC	ACM Transactions on Economics and Computation
TECS	ACM Transactions on Embedded Computing Systems
TIIS	ACM Transactions on Interactive Intelligent Systems
TISSEC	ACM Transactions on Information and System Security
TIST	ACM Transactions on Intelligent Systems and Technology
TKDD	ACM Transactions on Knowledge Discovery from Data
TMIS	ACM Transactions on Management Information Systems
TOCE	ACM Transactions on Computing Education
TOCHI	ACM Transactions on Computer-Human Interaction
TOCL	ACM Transactions on Computational Logic
TOCS	ACM Transactions on Computer Systems
TOCT	ACM Transactions on Computation Theory
TODAES	ACM Transactions on Design Automation of Electronic Systems
TODS	ACM Transactions on Database Systems
TOG	ACM Transactions on Graphics
TOIS	ACM Transactions on Information Systems
TOIT	ACM Transactions on Internet Technology
TOMACS	ACM Transactions on Modeling and Computer Simulation
TOMM	ACM Transactions on Multimedia Computing, Communications and Applications
TOMPECS	ACM Transactions on Modeling and Performance Evaluation of Computing Systems
TOMS	ACM Transactions on Mathematical Software
TOPC	ACM Transactions on Parallel Computing
TOPLAS	ACM Transactions on Programming Languages and Systems
TOPS	ACM Transactions on Privacy and Security
TOS	ACM Transactions on Storage
TOSEM	ACM Transactions on Software Engineering and Methodology
TOSN	ACM Transactions on Sensor Networks
TRETS	ACM Transactions on Reconfigurable Technology and Systems
TSAS	ACM Transactions on Spatial Algorithms and Systems
TSC	ACM Transactions on Social Computing
TSLP	ACM Transactions on Speech and Language Processing
TWEB	ACM Transactions on the Web



`\author` should be used, followed by `\affiliation` and `\email`. If several authors share affiliations, in journal formats like `acmsmall` or `acmlarge` one may put the affiliation after all these authors, for example:

```
\author{A. U. Thor}
\email{author@nsw.au.edu}
\affiliation{University of New South Wales}
\author{A. N. Other}
\author{C. O. Respondent}
\affiliation{University of Pennsylvania}
```

In the cases of overlapping affiliations it is advisable to repeat the full list, for example,

```
\author{A. U. Thor}
\affiliation{University of New South Wales, Australia}
\email{author@nsw.edu.au}
\author{A. N. Other}
\affiliation{University of Pennsylvania, USA and University of New South
Wales, Australia}
\email{other@upenn.edu}
```

For *conferences* the affiliations should *always* be repeated, even if they are shared between the authors.

Note that old ACM conference formats did not allow for more than six authors and required some efforts from the authors to achieve alignment. The new format is much better in this.

It is expected that these commands are inserted by the author of the manuscript.

`\thanks` Like `amsart` (and unlike standard  $\LaTeX$ ), we allow `\thanks` only *outside* of commands `\title` and `\author`. Example:

```
\thanks{This work is supported by the Widget Corporation Grant
\#312-001.}
Author's address: D. Pineo, Kingsbury Hall, 33 Academic Way, Durham,
N.H. 03824; email: dspineo@comcast.net; Colin Ware, Jere A. Chase
Ocean Engineering Lab, 24 Colovos Road, Durham, NH 03824; email:
cware@ccom.unh.edu;
Sean Fogarty, (Current address) NASA Ames Research Center, Moffett
Field, California 94035.}
```

It is expected that this command is inserted by the author of the manuscript.

`\titlenote` While the command `\thanks` generates a note without footnote mark, sometimes  
`\subtitlenote` the authors might need notes more tightly connected to the title, subtitle or author. The  
`\authornote` commands `\titlenote`, `\subtitlenote` and `\authornote` that follow the corresponding  
commands (`\title`, `\subtitle` and `\author`) generate such notes, for example

```
\title{This is a title}
\titlenote{This is a titlenote}
\author{A. U. Thor}
```

`\authornote{This is an authornote}`

`\acmVolume`      The macros `\acmVolume`, `\acmNumber`, `\acmArticle`, `\acmYear` and `\acmMonth` are  
`\acmNumber`      inserted by the editor and set the journal volume, issue, article number, year and month  
`\acmArticle`      correspondingly. The arguments of all these commands, including `\acmMonth` is numer-  
`\acmYear`      ical, including `\acmMonth`, for example,  
`\acmMonth`

```
\acmVolume{9}  
\acmNumber{4}  
\acmArticle{39}  
\acmYear{2010}  
\acmMonth{3}
```

`\acmArticleSeq`      The articles in the same issue of a journal have *sequential number*. It is used to  
position black blob in same formats. By default it is the same as article number, but the  
command `\acmArticleSeq{<n>}` can be used to change it:

```
\acmArticle{39}    % The sequence number will be 39 by default  
\acmArticleSeq{5} % We rededine it to 5
```

`\acmPrice`      The macro `\acmPrice{<price>}` sets the price for the article (by default 15.00), for  
example,

```
\acmPrice{25.00}
```

`\acmISBN`      Book-like volumes have ISBN numbers attached to them. The macro `\acmISBN{<ISBN>}`  
sets it. Normally it is set by the typesetter, for example,

```
\acmISBN{978-1-4503-3916-2}
```

`\acmDOI`      The macro `\acmDOI{<DOI>}` sets the DOI number of the article, for example,

```
\acmDOI{10.1145/9999997.9999999}
```

It is normally set by the typesetter.

`\acmBadgeR`      Some conference articles get special distinction, for example, the artifact evaluation  
`\acmBadgeL`      for PPOPP 2016 (see <http://ctuning.org/ae/ppopp2016.html>). These articles display  
special badges supplied by the conference organizers. The class provides commands to  
add these badges: `\acmBadgeR[<url>]{<graphics>}` and `\acmBadgeL[<url>]{<graphics>}`.  
The first command puts the badge to the right of the title, and the second one—to the  
left. The exception is the sigchi-a mode for SIGCHI Extended abstract, which puts  
the badges on the left margin. The argument have the following meaning: `[<url>]`, if  
provided, sets the link to the badge authority in the screen version, while `{<graphics>}`  
sets the graphics file with the badge image. The file must be a cropped square, which is

scaled to a standard size in the output. For example, if the badge image is `ae-logo.pdf`, the command is

```
\acmBadgeR[http://ctuning.org/ae/ppopp2016.html]{ae-logo}
```

`\startPage`      The macro `\startPage{<page>}` sets the first page of the article in the journal or book. It is used by the typesetter.

`\terms`            The macros `\terms{<term, term,...>}` and `\keywords{<keyword, keyword,...>}` set the main terms and the additional keywords for the article. Term and keywords must be separated by commas, for example,

```
\terms{wireless, interference}
\keywords{wireless sensor networks, media access control,
multi-channel, radio interference, time synchronization}
```

`CCSXML`            ACM publications are classified according to the ACM Computing Classification Scheme (CCS). CCS codes are used both in the typeset version of the publications *and* in the metadata in the various databases. Therefore you need to provide both  $\TeX$  commands and XML metadata with the paper.

`\ccsdesc`

The tool at <http://dl.acm.org/ccs.cfm> can be used to generate CCS codes. After you select the topics, click on “Generate CCS codes” to get the result like the following:

```
\begin{CCSXML}
<ccs2012>
  <concept>
    <concept_id>10010520.10010553.10010562</concept_id>
    <concept_desc>Computer systems organization~Embedded systems</concept_desc>
    <concept_significance>500</concept_significance>
  </concept>
  <concept>
    <concept_id>10010520.10010575.10010755</concept_id>
    <concept_desc>Computer systems organization~Redundancy</concept_desc>
    <concept_significance>300</concept_significance>
  </concept>
  <concept>
    <concept_id>10010520.10010553.10010554</concept_id>
    <concept_desc>Computer systems organization~Robotics</concept_desc>
    <concept_significance>100</concept_significance>
  </concept>
  <concept>
    <concept_id>10003033.10003083.10003095</concept_id>
    <concept_desc>Networks~Network reliability</concept_desc>
    <concept_significance>100</concept_significance>
  </concept>
</ccs2012>
\end{CCSXML}

\ccsdesc[500]{Computer systems organization~Embedded systems}
```

Table 4: Parameters for `\setcopyright` command

Parameter	Meaning
<code>none</code>	The copyright and permission information is not typeset (this is the option for some ACM conferences).
<code>acmcopyright</code>	The authors transfer the copyright to ACM (the “traditional” choice).
<code>acmlicensed</code>	The authors retain the copyright but license the publication rights to ACM.
<code>rightsretained</code>	The authors retain the copyright and publication rights to themselves or somebody else.
<code>usgov</code>	All the authors are employees of the US Government.
<code>usgovmixed</code>	Some authors are employees of the US Government.
<code>cagov</code>	All the authors are employees of the Canadian Government.
<code>cagovmixed</code>	Some authors are employees of the Canadian Government.

```
\ccsdesc[300]{Computer systems organization~Redundancy}
\ccsdesc{Computer systems organization~Robotics}
\ccsdesc[100]{Networks~Network reliability}
```

You need to just copy this code and paste it in your paper anywhere before `\maketitle`.

`\setcopyright` There are several possibilities for the copyright of the papers published by ACM: the authors may transfer the rights to ACM, license them to ACM, some or all authors might be employees of the US or Canada Government, etc. Accordingly the command `\setcopyright{...}` is introduced. Its argument is the copyright status of the paper, for example, `\setcopyright{acmcopyright}`. The possible values for this command are listed in Table 4.

The ACM submission software should generate the right command for you to paste into your file.

`\copyrightyear` Each copyright statement must have the year of copyright. By default it is the same as `\acmYear`, but you can override this decision using the macro `\copyrightyear`, e.g.,

```
\acmYear{2016}
\copyrightyear{2015}
```

There is a special case for a personal copy that the authors may be allowed to generate for their use or a posting on a personal site (check the instructions for the specific journal or conference for the details). The document option `authorversion=true` produces the special form of the copyright statement for this case. Note that you still need the `\setcopyright` command and (optionally) `\copyrightyear` command to tell T<sub>E</sub>X about the copyright owner and year. Also, you should be aware that due to the different sizes of the permission blocks for the printed version and authors’ version the page breaks might be different between them.

Table 5: Settings for `\settopmatter` command

Parameter	Values	Meaning
<code>printccs</code>	true/false	Whether to print CCS categories
<code>printbib</code>	true/false	Whether to print ACM bibliographic entry

<code>abstract</code>	The environment <code>abstract</code> must <i>precede</i> <code>\maketitle</code> command. Again, this is different from the standard $\LaTeX$ .
<code>teaserfigure</code>	<p>A special kind of figure is used for many two-column conference proceedings. This figure is placed just after the authors, but before the main text. The environment <code>teaserfigure</code> is used for these figures. This environment must be used <i>before</i> <code>\maketitle</code>, for example,</p> <pre> \begin{teaserfigure}   \includegraphics[width=\textwidth]{sampleteaser}   \caption{This is a teaser}   \label{fig:teaser} \end{teaserfigure} </pre>
<code>\settopmatter</code>	<p>Some information in the top matter is printed for certain journals or proceedings and suppressed for others. You may override these defaults using the command <code>\settopmatter{&lt;settings&gt;}</code>. The settings and their meanings are listed in Table 5. For example,</p> <pre> \settopmatter{printbib=false, printccs=true} </pre>
<code>\received</code>	<p>The command <code>\received[&lt;stage&gt;]{&lt;date&gt;}</code> sets the history of the publication. The <code>[&lt;stage&gt;]</code> argument is optional; the default is Received for the first date and revised for the subsequent ones. For example</p> <pre> \received{February 2007} \received[revised]{March 2009} \received[accepted]{June 2009} </pre>
<code>\maketitle</code>	The macro <code>\maketitle</code> must be the last command in the top matter group: i.e., it must follow the commands defined in this section.
<code>\shortauthors</code>	<p><i>After</i> the command <code>\maketitle</code> the macro <code>\shortauthors</code> stores the names of the authors for the running head. You may redefine it if the list of author's name is too long, e.g.,</p> <pre> \maketitle \renewcommand{\shortauthors}{Zhou et. al.} </pre>

## 2.4 Algorithms

There now several good packages for typesetting algorithms [4, 5, 6], and the authors are now free to choose their favorite one.

## 2.5 Figures and tables

New ACM styles use the standard  $\LaTeX$  interface for figures and tables. There are some important items to be aware of, however.

1. The captions for figures must be entered *after* the figure bodies, and for the tables *before* the table bodies.
2. ACM uses the standard types for figures and tables and adds several new ones. In total there are following types:

**figure, table:** a standard figure or table, taking full text width in one-column formats and one column in two-column formats.

**figure\*, table\*** in two-column formats, a special figure or table taking full text width.

**teaserfigure:** a special figure before `\maketitle`.

**sidebar, marginfigure, margintable:** in the sigchi-a format, special sidebars, tables and figures on the margin.

3. Accordingly, when scaling the images, one should use the following sizes:
  - (a) For figure in one-column mode, figure\* in two-column mode or teaserfigure—`\textwidth` (in the one-column you can also use `\columnwidth`, which coincides with `\textwidth` in this case).
  - (b) For figure in two-column mode—`\columnwidth`.
  - (c) For marginfigure—`\marginparwidth`.
  - (d) For figure\* in SIGCHI Extended abstracts—`\fulltextwidth`.

It is strongly recommended to use the package `booktabs` [7] and follow its main principles of typography with respect to tables:

1. Never, ever use vertical rules.
2. Never use double rules.

It is also a good idea not to overuse horizontal rules.

For table *footnotes* you have several options described in TeX FAQ [1]. The simplest one is to use `\minipage` environment:

```
\begin{table}
\caption{Simulation Configuration}
\label{tab:conf}
\begin{minipage}{\columnwidth}
```

```

\begin{center}
\begin{tabular}{ll}
\toprule
TERRAIN\footnote{This is a table footnote. This is a
    table footnote. This is a table footnote.} &
    (200\,m$\times$200\,m) Square\\
Node Number & 289\\
Node Placement & Uniform\\
Application & Many-to-Many/Gossip CBR Streams\\
Payload Size & 32 bytes\\
Routing Layer & GF\\
MAC Layer & CSMA/MMSN\\
Radio Layer & RADIO-ACCNOISE\\
Radio Bandwidth & 250Kbps\\
Radio Range & 20m--45m\\
\bottomrule
\end{tabular}
\end{center}
\bigskip
\footnotesize\emph{Source:} This is a table
sourcenote. This is a table sourcenote. This is a table
sourcenote.

\emph{Note:} This is a table footnote.
\end{minipage}
\end{table}

```

sidebar  
 marginfigure  
 margintable

SIGCHI extended abstract extensively uses margin space. The package provides three environments for this with option captions:

**sidebar:** textual information on the margin

**marginfigure:** a figure on the margin

**margintable:** a table on the margin

## 2.6 Theorems

ACM classes define two theorem styles and several pre-defined theorem environments:

**acmplain:** this is the style used for theorem, conjecture, proposition, lemma, corollary, and

**acmdefinition:** this is the style used for example and definition.

## 2.7 Online-only and offline-only material

printonly  
 screenonly

Some supplementary material in ACM publication is put online, but not in the printed

version. The text inside the environment `screenonly` will be typeset only when the option `screen` (see Section 2.2) is set to `true`. Conversely, the text inside the environment `printonly` is typeset only when this option is set to `false`. For example

```
\section{Supplementary materials}

\begin{printonly}
  This section is included in the online version of the paper.
\end{printonly}

\begin{screenonly}
  (The actual section).
\end{screenonly}
```

## 2.8 Note about anonymous mode

`anonsuppress` When the option `anonymous` is selected,  $\text{\TeX}$  suppresses author information (including number of authors) for a blind review. However, sometimes the information identifying the authors may be present in the body of the paper, for example, in the acknowledgements. The environment `anonsuppress` is used to suppress such information, for example

```
\section*{Acknowledgements}
\begin{anonsuppress}
  The authors wish to thank Prof. C.~O.~Lleague for her generous
  advices and the Society for Development of Oort Cloud for the
  financial support.
\end{anonsuppress}
```

## 2.9 Bibliography

The Boolean option `natbib` selects whether to use `natbib` package for bibliography. If you use `natbib`, then commands like `\citep` and `\citeauthor` are automatically supported. You may customize `\natbib` using `\setcitestyle` command, for example,

```
\setcitestyle{numbers,sort&compress}
```

ACM journals use `natbib` and the style `ACM-Reference-Format-Journals`.

Most ACM conference proceedings do *not* use `natbib`. SIGGRAPH conferences use `acmsiggraph` style. SIGCHI conferences use `SIGCHI-Reference-Format` style. The other conferences employ one of the four styles:

1. `acm-abbrev`
2. `acm-alpha`



3. acm-plain

4. acm-unsrt

The author should consult specific instructions about the style to choose.

## 2.10 Colors

While printed ACM publications are usually black and white, screen mode allows the use of colors. The ACM classes pre-define several colors according to [8]: ACMBBlue, ACMYellow, ACMOrange, ACMRed, ACMLightBlue, ACMGreen, ACMPurple, ACMDarkBlue. You can use them in the color assignments.

## 3 Implementation

### 3.1 Identification

We start with the declaration who we are. Most .dtx files put driver code in a separate driver file .drv. We roll this code into the main file, and use the pseudo-guard <gobble> for it.

```
1 <class>\NeedsTeXFormat{LaTeX2e}
2 <*gobble>
3 \ProvidesFile{acmart.dtx}
4 </gobble>
5 <class>\ProvidesClass{acmart}
6 [2016/05/18 v1.09 Typesetting articles for Association of
7 Computing Machinery]
```

And the driver code:

```
8 <*gobble>
9 \documentclass{ltxdoc}
10 \usepackage{array,booktabs,amsmath,graphicx,fancyvrb,tabularx}
11 \usepackage[tt=false]{libertine}
12 \usepackage[varqu]{zi4}
13 \usepackage[libertine]{newtxmath}
14 \usepackage[tableposition=top]{caption}
15 \usepackage{hypdoc}
16 \PageIndex
17 \CodelineIndex
18 \RecordChanges
19 \EnableCrossrefs
20 \begin{document}
21   \DocInput{acmart.dtx}
22 \end{document}
23 </gobble>
24 <*class>
25 \def\@classname{acmart}
```

### 3.2 Options

We need xkeyval since some of our options may have values:

```
26 \RequirePackage{xkeyval}
```

format The possible formats

```
27 \define@choicekey*+{acmart.cls}{format}[\ACM@format\ACM@format@nr]{%
28   manuscript, acmsmall, acmlarge, acmtog, sigconf, siggraph,
29   sigplan, sigchi, sigchi-a}[manuscript]{}{%
30   \ClassError{\@classname}{The option format must be manuscript,
31     acmsmall, acmlarge, acmtog, sigconf, siggraph,
32     sigplan, sigchi or sigchi-a}}
33 \def\@DeclareACMFormat#1{\DeclareOptionX{#1}{\setkeys{acmart.cls}{format=#1}}}
34 \@DeclareACMFormat{manuscript}
```

```

35 \@DeclareACMFormat{acmsmall}
36 \@DeclareACMFormat{acmlarge}
37 \@DeclareACMFormat{acmtog}
38 \@DeclareACMFormat{sigconf}
39 \@DeclareACMFormat{siggraph}
40 \@DeclareACMFormat{sigplan}
41 \@DeclareACMFormat{sigchi}
42 \@DeclareACMFormat{sigchi-a}
43 \ExecuteOptionsX{format}

\if@ACM@screen Whether we use screen mode
44 \define@boolkey+{acmart.cls}[@ACM@]{screen}[true]{%
45   \if@ACM@screen
46     \PackageInfo{\@classname}{Using screen mode}%
47   \else
48     \PackageInfo{\@classname}{Not using screen mode}%
49   \fi}{\PackageError{\@classname}{Option screen can be either true or
50     false}}
51 \ExecuteOptionsX{screen=false}

\if@ACM@review Whether we use review mode
52 \define@boolkey+{acmart.cls}[@ACM@]{review}[true]{%
53   \if@ACM@review
54     \PackageInfo{\@classname}{Using review mode}%
55   \else
56     \PackageInfo{\@classname}{Not using review mode}%
57   \fi}{\PackageError{\@classname}{Option review can be either true or
58     false}}
59 \ExecuteOptionsX{review=false}

\if@ACM@authorversion Whether we use author's version
60 \define@boolkey+{acmart.cls}[@ACM@]{authorversion}[true]{%
61   \if@ACM@authorversion
62     \PackageInfo{\@classname}{Using authorversion mode}%
63   \else
64     \PackageInfo{\@classname}{Not using authorversion mode}%
65   \fi}{\PackageError{\@classname}{Option authorversion can be either true or
66     false}}
67 \ExecuteOptionsX{authorversion=false}

\if@ACM@natbib Whether we use natbib mode
68 \define@boolkey+{acmart.cls}[@ACM@]{natbib}[true]{%
69   \if@ACM@natbib
70     \PackageInfo{\@classname}{Using natbib mode}%
71   \else
72     \PackageInfo{\@classname}{Not using natbib mode}%
73   \fi}{\PackageError{\@classname}{Option natbib can be either true or
74     false}}
75 \ExecuteOptionsX{natbib=false}

```

```

\if@ACM@anonymous Whether we use anonymous mode
76 \define@boolkey+{acmart.cls}[@ACM@]{anonymous}[true]{%
77   \if@ACM@anonymous
78     \PackageInfo{\@classname}{Using anonymous mode}%
79   \else
80     \PackageInfo{\@classname}{Not using anonymous mode}%
81   \fi}{\PackageError{\@classname}{Option anonymous can be either true or
82     false}}
83 \ExecuteOptionsX{anonymous=false}

```

```

\ACM@fontsize The font size to pass to the base class
84 \def\ACM@fontsize{
85   \DeclareOptionX{9pt}{\edef\ACM@fontsize{\CurrentOption}}
86   \DeclareOptionX{10pt}{\edef\ACM@fontsize{\CurrentOption}}
87   \DeclareOptionX{11pt}{\edef\ACM@fontsize{\CurrentOption}}
88   \DeclareOptionX{12pt}{\edef\ACM@fontsize{\CurrentOption}}

89   \DeclareOptionX{draft}{\PassOptionsToClass{\CurrentOption}{amsart}}
90   \DeclareOptionX{*}{\PassOptionsToClass{\CurrentOption}{amsart}}
91   \ProcessOptionsX
92   \ClassInfo{\@classname}{Using format \ACM@format, number \ACM@format@nr}

```

### 3.3 Setting switches

```

\if@ACM@manuscript Whether we use manuscript mode
93 \newif\if@ACM@manuscript

\if@ACM@journal There are two kinds of publications: journals and books
94 \newif\if@ACM@journal

\if@ACM@sigchiamode The formatting of SIGCHI abstracts is quite unusual. We have a special switch for them.
95 \newif\if@ACM@sigchiamode

Setting up switches
96 \ifnum\ACM@format@nr=0\relax
97   \@ACM@manuscripttrue
98 \else
99   \@ACM@manuscriptfalse
100 \fi
101 \@ACM@sigchiamodefalse
102 \ifcase\ACM@format@nr
103 \relax % manuscript
104   \@ACM@journaltrue
105 \or % acmsmall
106   \@ACM@journaltrue
107 \or % acmlarge
108   \@ACM@journaltrue
109 \or % acmtog

```

```

110 \ACM@journaltrue
111 \or % sigconf
112 \ACM@journalfalse
113 \or % siggraph
114 \ACM@journalfalse
115 \or % sigplan
116 \ACM@journalfalse
117 \or % sigchi
118 \ACM@journalfalse
119 \or % sigchi-a
120 \ACM@journalfalse
121 \ACM@sigchiamodetrue
122 \fi

```

### 3.4 Loading base class and package

At this point we either have \ACM@fontsize, or use defaults

```

123 \ifx\ACM@fontsize\@empty
124 \ifcase\ACM@format@nr
125 \relax % manuscript
126 \def\ACM@fontsize{9pt}%
127 \or % acmsmall
128 \def\ACM@fontsize{10pt}%
129 \or % acmlarge
130 \def\ACM@fontsize{9pt}%
131 \or % acmtog
132 \def\ACM@fontsize{9pt}%
133 \or % sigconf
134 \def\ACM@fontsize{9pt}%
135 \or % siggraph
136 \def\ACM@fontsize{9pt}%
137 \or % sigplan
138 \def\ACM@fontsize{9pt}%
139 \or % sigchi
140 \def\ACM@fontsize{10pt}%
141 \or % sigchi-a
142 \def\ACM@fontsize{10pt}%
143 \fi
144 \fi
145 \ClassInfo{\@classname}{Using fontsize \ACM@fontsize}
146 \LoadClass[\ACM@fontsize, reqno]{amsart}
147 \RequirePackage{microtype}

```

We need totpages package to calculate the number of pages

```

148 \RequirePackage{totpages}

```

The amsmath \collect@body is defined using \def. We load environ to access the \long version of the command

```

149 \RequirePackage{environ}

```

We use setspace for doublespacing

```
150 \if@ACM@manuscript
151 \RequirePackage{setspace}
152 \onehalfspacing
153 \fi
```

Citations. We patch \setcitestyle to allow, e.g., \setcitestyle{sort} and \setcitestyle{nosort}

```
154 \if@ACM@natbib
155 \RequirePackage{natbib}
156 \renewcommand{\bibfont}{\bibliofont}
157 \renewcommand\setcitestyle[1]{
158 \@for\@tempa:=#1\do
159 {\def\@tempb{round}\ifx\@tempa\@tempb
160 \renewcommand\NAT@open{(\renewcommand\NAT@close{)}\fi
161 \def\@tempb{square}\ifx\@tempa\@tempb
162 \renewcommand\NAT@open{[\renewcommand\NAT@close{]}\fi
163 \def\@tempb{angle}\ifx\@tempa\@tempb
164 \renewcommand\NAT@open{$<\renewcommand\NAT@close{$>}\fi
165 \def\@tempb{curly}\ifx\@tempa\@tempb
166 \renewcommand\NAT@open{\{\renewcommand\NAT@close{\}}\fi
167 \def\@tempb{semicolon}\ifx\@tempa\@tempb
168 \renewcommand\NAT@sep{;}\fi
169 \def\@tempb{colon}\ifx\@tempa\@tempb
170 \renewcommand\NAT@sep{:}\fi
171 \def\@tempb{comma}\ifx\@tempa\@tempb
172 \renewcommand\NAT@sep{,}\fi
173 \def\@tempb{authoryear}\ifx\@tempa\@tempb
174 \NAT@numbersfalse\fi
175 \def\@tempb{numbers}\ifx\@tempa\@tempb
176 \NAT@numberstrue\NAT@superfalse\fi
177 \def\@tempb{super}\ifx\@tempa\@tempb
178 \NAT@numberstrue\NAT@supertrue\fi
179 \def\@tempb{nobibstyle}\ifx\@tempa\@tempb
180 \let\bibstyle=\@gobble\fi
181 \def\@tempb{bibstyle}\ifx\@tempa\@tempb
182 \let\bibstyle=\@citestyle\fi
183 \def\@tempb{sort}\ifx\@tempa\@tempb
184 \def\NAT@sort{\@ne}\fi
185 \def\@tempb{nosort}\ifx\@tempa\@tempb
186 \def\NAT@sort{\z@}\fi
187 \def\@tempb{compress}\ifx\@tempa\@tempb
188 \def\NAT@cmprs{\@ne}\fi
189 \def\@tempb{nocompress}\ifx\@tempa\@tempb
190 \def\NAT@cmprs{\@z}\fi
191 \def\@tempb{sort&compress}\ifx\@tempa\@tempb
192 \def\NAT@sort{\@ne}\def\NAT@cmprs{\@ne}\fi
193 \def\@tempb{mcite}\ifx\@tempa\@tempb
194 \let\NAT@merge\@ne\fi
195 \def\@tempb{merge}\ifx\@tempa\@tempb
```

```

196 \ifnum{\NAT@merge<\tw@}{\let\NAT@merge\tw@}\fi
197 \def\@tempb{elide}\ifx\@tempa\@tempb
198 \ifnum{\NAT@merge<\thr@}{\let\NAT@merge\thr@}\fi
199 \def\@tempb{longnamesfirst}\ifx\@tempa\@tempb
200 \NAT@longnamestrue\fi
201 \def\@tempb{nonamebreak}\ifx\@tempa\@tempb
202 \def\NAT@nmfmt#1{\mbox{\NAT@up#1}}\fi
203 \expandafter\NAT@find@eq\@tempa=\relax\@nil
204 \if\@tempc\relax\else
205 \expandafter\NAT@rem@eq\@tempc
206 \def\@tempb{open}\ifx\@tempa\@tempb
207 \xdef\NAT@open{\@tempc}\fi
208 \def\@tempb{close}\ifx\@tempa\@tempb
209 \xdef\NAT@close{\@tempc}\fi
210 \def\@tempb{aysep}\ifx\@tempa\@tempb
211 \xdef\NAT@aysep{\@tempc}\fi
212 \def\@tempb{yysep}\ifx\@tempa\@tempb
213 \xdef\NAT@yrsep{\@tempc}\fi
214 \def\@tempb{notesep}\ifx\@tempa\@tempb
215 \xdef\NAT@cmt{\@tempc}\fi
216 \def\@tempb{citesep}\ifx\@tempa\@tempb
217 \xdef\NAT@sep{\@tempc}\fi
218 \fi
219 }%
220 \NAT@@setcites
221 }
222 \setcitestyle{%
223 open={[]},close={[]},citesep={;},%
224 authoryear,aysep={},yysep={,},%
225 notesep={, }}
226 \fi

```

Before we call `hyperref`, we redefine `\startsection` commands to their  $\text{\LaTeX}$  defaults, since `amsart` ones are too AMS-specific. We need to do this early since we want `hyperref` to have a chance to redefine them again:

```

227 \def\@startsection#1#2#3#4#5#6{%
228 \if@noskipsec \leavevmode \fi
229 \par
230 \@tempskipa #4\relax
231 \@afterindenttrue
232 \ifdim \@tempskipa <\z@
233 \@tempskipa -\@tempskipa \@afterindentfalse
234 \fi
235 \if@nobreak
236 \everypar{}%
237 \else
238 \addpenalty\@secpenalty\addvspace\@tempskipa
239 \fi
240 \ifstar
241 {\@ssect{#3}{#4}{#5}{#6}}%

```

```

242     {\@dblarg{\@sect{#1}{#2}{#3}{#4}{#5}{#6}}}}
243 \def\@sect#1#2#3#4#5#6[#7]#8{%
244     \ifnum #2>\c@secnumdepth
245         \let\@svsec\@empty
246     \else
247         \refstepcounter{#1}%
248         \protected@edef\@svsec{\@seccntformat{#1}\relax}%
249     \fi
250     \@tempskipa #5\relax
251     \ifdim \@tempskipa>\z@
252         \begingroup
253             #6{%
254                 \@hangfrom{\hskip #3\relax\@svsec}%
255                 \interlinepenalty \@M #8\@par}%
256         \endgroup
257         \csname #1mark\endcsname{#7}%
258         \addcontentsline{toc}{#1}{%
259             \ifnum #2>\c@secnumdepth \else
260                 \protect\numberline{\csname the#1\endcsname}%
261             \fi
262             #7}%
263     \else
264         \def\@svsechd{%
265             #6{\hskip #3\relax
266                 \@svsec #8}%
267             \csname #1mark\endcsname{#7}%
268             \addcontentsline{toc}{#1}{%
269                 \ifnum #2>\c@secnumdepth \else
270                     \protect\numberline{\csname the#1\endcsname}%
271                 \fi
272                 #7}%
273         \fi
274         \@xsect{#5}}
275 \def\@xsect#1{%
276     \@tempskipa #1\relax
277     \ifdim \@tempskipa>\z@
278         \par \nobreak
279         \vskip \@tempskipa
280         \@afterheading
281     \else
282         \@nobreakfalse
283         \global\@noskipsectrue
284         \everypar{%
285             \if@noskipsec
286                 \global\@noskipsecfalse
287                 {\setbox\z@\lastbox}%
288                 \clubpenalty\@M
289             \begingroup \@svsechd \endgroup
290             \unskip
291             \@tempskipa #1\relax

```



```

292         \hskip -\@tempskipa
293     \else
294         \clubpenalty \@clubpenalty
295         \everypar{}%
296     \fi}%
297 \fi
298 \ignorespaces}
299 \def\@secntformat#1{\csname the#1\endcsname\quad}
300 \def\@ssect#1#2#3#4#5{%
301     \@tempskipa #3\relax
302     \ifdim \@tempskipa>\z@
303         \begingroup
304             #4{%
305                 \@hangfrom{\hskip #1}%
306                 \interlinepenalty \@M #5\@@par}%
307         \endgroup
308     \else
309         \def\@svsechd{#4{\hskip #1\relax #5}}%
310     \fi
311     \@xsect{#3}}

```

#### And hyperref

```

312 \let\@footnotemark@nolink\@footnotemark
313 \let\@footnotetext@nolink\@footnotetext
314 \RequirePackage{hyperref}
315 \urlstyle{rm}
316 \ifcase\ACM@format@nr
317 \relax % manuscript
318 \or % acmsmall
319 \or % acmlarge
320 \or % acmtog
321 \or % sigconf
322 \or % siggraph
323 \or % sigplan
324     \urlstyle{sf}
325 \or % sigchi
326 \or % sigchi-a
327     \urlstyle{sf}
328 \fi
329 \if@ACM@screen
330     \hypersetup{colorlinks,
331         linkcolor=ACMRed,
332         citecolor=ACMPurple,
333         urlcolor=ACMDarkBlue,
334         filecolor=ACMDarkBlue}
335 \else
336     \hypersetup{hidelinks}
337 \fi

```

Bibliography mangling. Siggraph does not want the label.

```

338 \if@ACM@natbib

```

```

339 \let\citeN\cite
340 \let\cite\citep
341 \let\citeANP\citeauthor
342 \let\citeNN\citeyearpar
343 \let\citeyearNP\citeyear
344 \let\citeyear\citeyearpar
345 \let\citeNP\citealt
346 \def\shortcite#1{\citeyear{#1}}
347 \DeclareRobustCommand\citeA
348     {\begingroup\NAT@swafalse
349      \let\NAT@ctype\@ne\NAT@partrue\NAT@fullfalse\NAT@open\NAT@citetp}
350 \providecommand\newblock{}
351 \else
352 \providecommand\citename[1]{#1}
353 \fi
354 \ifcase\ACM@format@nr
355 \relax % manuscript
356 \or % acmsmall
357 \or % acmlarge
358 \or % acmtog
359 \or % sigconf
360 \or % siggraph
361 \def\@biblabel#1{}
362 \ifx\bibhang\undefined
363 \newlength\bibhang
364 \fi
365 \setlength{\bibhang}{1em}
366 \renewenvironment{thebibliography}[1]{%
367     \@bibtitlestyle
368     \normalfont\bibliofont\labelsep .5em\relax
369     \renewcommand\theenumiv{\arabic{enumiv}}\let\p@enumiv\@empty
370     \list{\@biblabel{\theenumiv}}{\labelwidth\z@
371         \setlength{\itemindent}{-\bibhang}%
372         \setlength{\leftmargin}{\bibhang}%
373         \labelsep\z@
374         \def\newblock{\hspace .11em plus .33em minus .07em}%
375         \usecounter{enumiv}}%
376     \sloppy \clubpenalty\@M \widowpenalty\clubpenalty
377     \sfcode'\.=\@m
378 }{%
379     \def\@noitemerr{\@latex@warning{Empty 'thebibliography' environment}}%
380     \endlist
381 }
382 \or % sigplan
383 \or % sigchi
384 \or % sigchi-a
385 \fi

Graphics and color
386 \RequirePackage{graphicx, xcolor}

```

We define ACM colors according to [8]:

```
387 \definecolor[named]{ACMBlue}{cmyk}{1,0.1,0,0.1}
388 \definecolor[named]{ACMYellow}{cmyk}{0,0.16,1,0}
389 \definecolor[named]{ACMOrange}{cmyk}{0,0.42,1,0.01}
390 \definecolor[named]{ACMRed}{cmyk}{0,0.90,0.86,0}
391 \definecolor[named]{ACMLightBlue}{cmyk}{0.49,0.01,0,0}
392 \definecolor[named]{ACMGreen}{cmyk}{0.20,0,1,0.19}
393 \definecolor[named]{ACMPurple}{cmyk}{0.55,1,0,0.15}
394 \definecolor[named]{ACMDarkBlue}{cmyk}{1,0.58,0,0.21}
```

### 3.5 Paper size and paragraphing

We use geometry for dimensions

```
395 \RequirePackage{geometry}
396 \ifcase\ACM@format@nr
397 \relax % manuscript
398   \geometry{letterpaper,head=1pc}%
399 \or % acmsmall
400   \geometry{twoside=true,
401     includeheadfoot, head=1pc, foot=2pc,
402     paperwidth=6.75in, paperheight=10in,
403     top=58pt, bottom=44pt, inner=46pt, outer=46pt
404   }%
405 \or % acmlarge
406   \geometry{twoside=true, head=1pc, foot=2pc,
407     paperwidth=8.5in, paperheight=11in,
408     includeheadfoot,
409     top=78pt, bottom=114pt, inner=81pt, outer=81pt
410   }%
411 \or % acmtog
412   \geometry{twoside=true, head=1pc, foot=2pc,
413     paperwidth=8.5in, paperheight=11in,
414     includeheadfoot, columnsep=24pt,
415     top=52pt, bottom=75pt, inner=52pt, outer=52pt
416   }%
417 \or % sigconf
418   \geometry{twoside=true, head=1pc,
419     paperwidth=8.5in, paperheight=11in,
420     includeheadfoot, columnsep=2pc,
421     top=57pt, bottom=75pt, inner=54pt, outer=57pt
422   }%
423 \or % siggraph
424   \geometry{twoside=true, head=1pc,
425     paperwidth=8.5in, paperheight=11in,
426     includeheadfoot, columnsep=2pc,
427     top=57pt, bottom=75pt, inner=54pt, outer=57pt
428   }%
429 \or % sigplan
430   \geometry{twoside=true, head=1pc,
```

```

431     paperwidth=8.5in, paperheight=11in,
432     includeheadfoot=false, columnsep=2pc,
433     top=1in, bottom=1in, inner=0.75in, outer=0.75in
434   }%
435 \or % sigchi
436   \geometry{twoside=true, head=1pc,
437     paperwidth=8.5in, paperheight=11in,
438     includeheadfoot, columnsep=2pc,
439     top=66pt, bottom=78pt, inner=54pt, outer=48pt
440   }%
441 \or % sigchi-a
442   \geometry{twoside=false, head=1pc,
443     paperwidth=11in, paperheight=8.5in,
444     includeheadfoot, marginparsep=72pt,
445     marginparwidth=170pt, columnsep=20pt,
446     top=72pt, bottom=72pt, left=314pt, right=72pt
447   }%
448   \@mparswitchfalse
449   \reversemarginpar
450 \fi

```

\parindent Paragraphing

```

\parskip
451 \setlength\parindent{10\p@}
452 \setlength\parskip{\z@}
453 \ifcase\ACM@format@nr
454 \relax % manuscript
455 \or % acmsmall
456 \or % acmlarge
457 \or % acmtog
458   \setlength\parindent{9\p@}%
459 \or % sigconf
460 \or % siggraph
461 \or % sigplan
462 \or % sigchi
463 \or % sigchi-a
464 \fi

```

Footnotes require some consideration. We have several layers of footnotes: front-matter footnotes, “regular” footnotes and the special insert for bibstrip. In the old ACM classes bibstrip was a \@float. The problem with floats is that they tend to, well, float—and we want the guarantee they stay.

```

465 \RequirePackage{manyfoot}
466 \DeclareNewFootnote{copyrightpermission}
467 \skip\footinscopyrightpermission=0.1\baselineskip plus 0.1\baselineskip

```

\footnoterule Tschichold’s rules:

```

468 \def\footnoterule{\kern-3\p@
469   \hrule \@width \columnwidth \kern 2.6\p@}

```

```

\endminipage We do not use footnote rules in minipages
470 \def\endminipage{%
471   \par
472   \unskip
473   \ifvoid\@mpfootins\else
474     \vskip\skip\@mpfootins
475     \normalcolor
476     \unvbox\@mpfootins
477   \fi
478   \@minipagefalse %% added 24 May 89
479   \color@endgroup
480   \egroup
481   \expandafter\@iiiparbox\@mpargs{\unvbox\@tempboxa}}
482

\@makefnmark We do not use indentation for footnotes
483 \def\@makefnmark{\noindent\@makefnmark}

\@footnotetext In sigchi-a mode our footnotes are on the margins!
484 \if@ACM@sigchiamode
485 \long\def\@footnotetext#1{\marginpar{%
486   \reset@font\small
487   \interlinepenalty\interfootnotelinepenalty
488   \protected@edef\@currentlabel{%
489     \csname p@footnote\endcsname\@thefnmark
490   }%
491   \color@begingroup
492     \@makefnmark{%
493       \rule{z@footnotesep}{\ignorespaces#1}\@finalstrut\strutbox}%
494   \color@endgroup}}%
495 \fi

```

### 3.6 Fonts

We use Times throughout

```

496 \usepackage[tt=false]{libertine}
497 \usepackage[varqu]{zi4}
498 \usepackage[libertine]{newtxmath}

```

The SIGCHI extended abstracts are sans serif:

```

499 \if@ACM@sigchiamode
500   \renewcommand{\familydefault}{\sfdefault}
501 \fi

```

### 3.7 Floats

We use caption package

```

502 \RequirePackage{caption, float}
503 \captionsetup[table]{position=top}

```

```

504 \if@ACM@journal
505   \captionsetup{labelfont={sf}, small},
506   textfont={sf, small}, margin=\z@}
507   \captionsetup[figure]{name={Fig.}}
508 \else
509   \captionsetup{labelfont={bf},
510     textfont={bf}, labelsep=colon, margin=\z@}
511   \ifcase\ACM@format@nr
512   \relax % manuscript
513   \or % acmsmall
514   \or % acmlarge
515   \or % acmtog
516   \or % sigconf
517   \or % siggraph
518     \captionsetup{textfont={it}}
519   \or % sigplan
520     \captionsetup{labelfont={bf},
521       textfont={normalfont}, labelsep=period, margin=\z@}
522   \or % sigchi
523     \captionsetup[figure]{labelfont={bf}, small},
524     textfont={bf, small}}
525   \or % sigchi-a
526     \captionsetup[figure]{labelfont={bf}, small},
527     textfont={bf, small}}
528   \fi
529 \fi

```

sidebar The sidebar environment:

```

530 \newfloat{sidebar}{}{sbar}
531 \floatname{sidebar}{Sidebar}
532 \renewenvironment{sidebar}{}{\Collect@Body\@sidebar}{}

```

\@sidebar The processing of the saved text

```

533 \long\def\@sidebar#1{\bgroup\captionsetup{type=sidebar}%
534   \marginpar{\small#1}\egroup}

```

marginfigure The marginfigure environment:

```

535 \newenvironment{marginfigure}{}{\Collect@Body\@marginfigure}{}

```

\@marginfigure The processing of the saved text

```

536 \long\def\@marginfigure#1{\bgroup\captionsetup{type=figure}%
537   \marginpar{\small#1}\egroup}

```

margintable The margintable environment:

```

538 \newenvironment{margintable}{}{\Collect@Body\@margintable}{}

```

\@margintable The processing of the saved text

```

539 \long\def\@margintable#1{\bgroup\captionsetup{type=table}%
540   \marginpar{\small#1}\egroup}

```

SIGCHI extended abstract provides an interesting possibility to push into the margin. Here we use `figure*` and `table*` for this.

```
\fulltextwidth We define the width of the boxes as
541 \newdimen\fulltextwidth
542 \fulltextwidth=\dimexpr(\textwidth+\marginparwidth+\marginparsep)

\@dblfloat We redefine the double float command. First, we make the size bigger. Second, our
default position is going to be tp (to give marginalia a chance)
543 \if@ACM@sigchiamode
544 \def\@dblfloat{\bgroup\columnwidth=\fulltextwidth
545 \let\@endfloatbox\@endwidefloatbox
546 \def\@fpsaddddefault{\def\@fps{tp}}}%
547 \@float}
548 \fi

\end@dblfloat And the end. Just adding a \bgroup.
549 \if@ACM@sigchiamode
550 \def\end@dblfloat{%
551 \end@float\egroup}
552 \fi

\@endwidefloatbox This is the end of a wide box - we basically move everything to the left
553 \def\@endwidefloatbox{%
554 \par\vskip\z@skip
555 \@minipagefalse
556 \outer@nobreak
557 \egroup
558 \color@endbox
559 \global\setbox\@currbox=\vbox{\moveleft
560 \dimexpr(\fulltextwidth-\textwidth)\box\@currbox}%
561 \wd\@currbox=\textwidth
562 }
```

### 3.8 Lists

```
563 \ifcase\ACM@format@nr
564 \relax % manuscript
565 \or % acmsmall
566 \or % acmlarge
567 \or % acmtog
568 \or % sigconf
569 \or % siggraph
570 \or % sigplan
571 \def\labelenumi{\theenumi.}
572 \def\labelenumii{\theenumii.}
573 \def\labelenumiii{\theenumiii.}
574 \def\labelenumiv{\theenumiv.}
575 \or % sigchi
```

```

576 \or % sigchi-a
577 \fi

```

### 3.9 Top matter data

We use keyval interface to define journal title and relevant information

```

578 \define@choicekey*+{ACM}{acmJournal}[\@journalCode\@journalCode@nr]{%
579   CIE,%
580   CSUR,%
581   JACM,%
582   JDIQ,%
583   JEA,%
584   JERIC,%
585   JETC,%
586   JOCCH,%
587   TAAS,%
588   TACCESS,%
589   TACO,%
590   TALG,%
591   TALLIP,%
592   TAP,%
593   TCPS,%
594   TEAC,%
595   TECS,%
596   TIIS,%
597   TISSEC,%
598   TIST,%
599   TKDD,%
600   TMIS,%
601   TOCE,%
602   TOCHI,%
603   TOCL,%
604   TOCS,%
605   TOCT,%
606   TODAES,%
607   TODS,%
608   TOG,%
609   TOIS,%
610   TOIT,%
611   TOMACS,%
612   TOMM,%
613   TOMPECS,%
614   TOMS,%
615   TOPC,%
616   TOPS,%
617   TOPLAS,%
618   TOS,%
619   TOSEM,%
620   TOSN,%
621   TRETs,%

```



```

622 TSAS,%
623 TSC,%
624 TSLP,%
625 TWEB%
626 }{%
627 \ifcase\@journalCode@nr
628 \relax % CIE
629 \def\@journalName{ACM Computers in Entertainment}%
630 \def\@journalNameShort{ACM Comput. Entertain.}%
631 \def\@permissionCodeOne{1544-3574}%
632 \or % CSUR
633 \def\@journalName{ACM Computing Surveys}%
634 \def\@journalNameShort{ACM Comput. Surv.}%
635 \def\@permissionCodeOne{0360-0300}%
636 \or % JACM
637 \def\@journalName{Journal of the ACM}%
638 \def\@journalNameShort{J. ACM}%
639 \def\@permissionCodeOne{0004-5411}%
640 \or % JDIQ
641 \def\@journalName{ACM Journal of Data and Information Quality}%
642 \def\@journalNameShort{ACM J. Data Inform. Quality}%
643 \def\@permissionCodeOne{1936-1955}%
644 \or % JEA
645 \def\@journalName{ACM Journal of Experimental Algorithmics}%
646 \def\@journalNameShort{ACM J. Exp. Algor.}%
647 \def\@permissionCodeOne{1084-6654}%
648 \or % JERIC
649 \def\@journalName{ACM Journal of Educational Resources in Computing}%
650 \def\@journalNameShort{ACM J. Edu. Resources in Comput.}%
651 \def\@permissionCodeOne{1073-0516}%
652 \or % JETC
653 \def\@journalName{ACM Journal on Emerging Technologies in Computing Systems}%
654 \def\@journalNameShort{ACM J. Emerg. Technol. Comput. Syst.}%
655 \def\@permissionCodeOne{1550-4832}%
656 \or % JOCCH
657 \def\@journalName{ACM Journal on Computing and Cultural Heritage}%
658 \def\@journalNameShort{ACM J. Comput. Cult. Herit.}%
659 \or % TAAS
660 \def\@journalName{ACM Transactions on Autonomous and Adaptive Systems}%
661 \def\@journalNameShort{ACM Trans. Autonom. Adapt. Syst.}%
662 \def\@permissionCodeOne{1556-4665}%
663 \or % TACCESS
664 \def\@journalName{ACM Transactions on Accessible Computing}%
665 \def\@journalNameShort{ACM Trans. Access. Comput.}%
666 \def\@permissionCodeOne{1936-7228}%
667 \or % TACO
668 \def\@journalName{ACM Transactions on Architecture and Code Optimization}%
669 \or % TALG
670 \def\@journalName{ACM Transactions on Algorithms}%
671 \def\@journalNameShort{ACM Trans. Algor.}%

```

```

672 \def\@permissionCodeOne{1549-6325}%
673 \or % TALLIP
674 \def\@journalName{ACM Transactions on Asian and Low-Resource Language Information Processing}%
675 \def\@journalNameShort{ACM Trans. Asian Low-Resour. Lang. Inf. Process.}%
676 \def\@permissionCodeOne{2375-4699}%
677 \or % TAP
678 \def\@journalName{ACM Transactions on Applied Perception}%
679 \or % TCPS
680 \def\@journalName{ACM Transactions on Cyber-Physical Systems}%
681 \or % TEAC
682 \def\@journalName{ACM Transactions on Economics and Computation}%
683 \or % TECS
684 \def\@journalName{ACM Transactions on Embedded Computing Systems}%
685 \def\@journalNameShort{ACM Trans. Embedd. Comput. Syst.}%
686 \def\@permissionCodeOne{1539-9087}%
687 \or % TIIS
688 \def\@journalName{ACM Transactions on Interactive Intelligent Systems}%
689 \def\@journalNameShort{ACM Trans. Interact. Intell. Syst.}%
690 \def\@permissionCodeOne{2160-6455}%
691 \or % TISSEC
692 \def\@journalName{ACM Transactions on Information and System Security}%
693 \def\@journalNameShort{ACM Trans. Info. Syst. Sec.}%
694 \def\@permissionCodeOne{1094-9224}%
695 \or % TIST
696 \def\@journalName{ACM Transactions on Intelligent Systems and Technology}%
697 \def\@journalNameShort{ACM Trans. Intell. Syst. Technol.}%
698 \def\@permissionCodeOne{2157-6904}%
699 \or % TKDD
700 \def\@journalName{ACM Transactions on Knowledge Discovery from Data}%
701 \def\@journalNameShort{ACM Trans. Knowl. Discov. Data.}%
702 \def\@permissionCodeOne{1556-4681}%
703 \or % TMIS
704 \def\@journalName{ACM Transactions on Management Information Systems}%
705 \def\@journalNameShort{ACM Trans. Manag. Inform. Syst.}%
706 \def\@permissionCodeOne{2158-656X}%
707 \or % TOCE
708 \def\@journalName{ACM Transactions on Computing Education}%
709 \def\@journalNameShort{ACM Trans. Comput. Educ.}%
710 \def\@permissionCodeOne{1946-6226}%
711 \or % TOCHI
712 \def\@journalName{ACM Transactions on Computer-Human Interaction}%
713 \def\@journalNameShort{ACM Trans. Comput.-Hum. Interact.}%
714 \def\@permissionCodeOne{1073-0516}%
715 \or % TOCL
716 \def\@journalName{ACM Transactions on Computational Logic}%
717 \def\@journalNameShort{ACM Trans. Comput. Logic}%
718 \def\@permissionCodeOne{1529-3785}%
719 \or % TOCS
720 \def\@journalName{ACM Transactions on Computer Systems}%
721 \def\@journalNameShort{ACM Trans. Comput. Syst.}%

```

```

722 \def\@permissionCodeOne{0734-2071}%
723 \or % TOCT
724 \def\@journalName{ACM Transactions on Computation Theory}%
725 \def\@journalNameShort{ACM Trans. Comput. Theory}%
726 \def\@permissionCodeOne{1942-3454}%
727 \or % TODAES
728 \def\@journalName{ACM Transactions on Design Automation of Electronic Systems}%
729 \def\@journalNameShort{ACM Trans. Des. Autom. Electron. Syst.}%
730 \def\@permissionCodeOne{1084-4309}%
731 \or % TODS
732 \def\@journalName{ACM Transactions on Database Systems}%
733 \def\@journalNameShort{ACM Trans. Datab. Syst.}%
734 \def\@permissionCodeOne{0362-5915}%
735 \or % TOG
736 \def\@journalName{ACM Transactions on Graphics}%
737 \def\@journalNameShort{ACM Trans. Graph.}%
738 \def\@permissionCodeOne{0730-0301}%
739 \or % TOIS
740 \def\@journalName{ACM Transactions on Information Systems}%
741 \def\@journalName{ACM Transactions on Information Systems}%
742 \def\@permissionCodeOne{1046-8188}%
743 \or % TOIT
744 \def\@journalName{ACM Transactions on Internet Technology}%
745 \def\@journalNameShort{ACM Trans. Internet Technol.}%
746 \def\@permissionCodeOne{1533-5399}%
747 \or % TOMACS
748 \def\@journalName{ACM Transactions on Modeling and Computer Simulation}%
749 \def\@journalName{ACM Transactions on Modeling and Computer Simulation}%
750 \def\@journalNameShort{ACM Trans. Model. Comput. Simul.}%
751 \or % TOMM
752 \def\@journalName{ACM Transactions on Multimedia Computing, Communications and Applications}%
753 \def\@journalNameShort{ACM Trans. Multimedia Comput. Commun. Appl.}%
754 \def\@permissionCodeOne{1551-6857}%
755 \def\@permissionCodeTwo{0100}%
756 \or % TOMPECS
757 \def\@journalName{ACM Transactions on Modeling and Performance Evaluation of Computing Systems}%
758 \def\@journalNameShort{ACM Trans. Model. Perform. Eval. Comput. Syst.}%
759 \def\@permissionCodeOne{2376-3639}%
760 \or % TOMS
761 \def\@journalName{ACM Transactions on Mathematical Software}%
762 \def\@journalNameShort{ACM Trans. Math. Softw.}%
763 \def\@permissionCodeOne{0098-3500}%
764 \or % TOPC
765 \def\@journalName{ACM Transactions on Parallel Computing}%
766 \def\@journalNameShort{ACM Trans. Parallel Comput.}%
767 \def\@permissionCodeOne{1539-9087}%
768 \or % TOPS
769 \def\@journalName{ACM Transactions on Privacy and Security}%
770 \def\@journalNameShort{ACM Trans. Priv. Sec.}%
771 \def\@permissionCodeOne{2471-2566}%

```

```

772 \or % TOPLAS
773   \def\@journalName{ACM Transactions on Programming Languages and Systems}%
774   \def\@journalNameShort{ACM Trans. Program. Lang. Syst.}%
775   \def\@permissionCodeOne{0164-0925}%
776 \or % TOS
777   \def\@journalName{ACM Transactions on Storage}%
778   \def\@journalNameShort{ACM Trans. Storage}%
779   \def\@permissionCodeOne{1553-3077}%
780 \or % TOSEM
781   \def\@journalName{ACM Transactions on Software Engineering and Methodology}%
782   \def\@journalNameShort{ACM Trans. Softw. Eng. Methodol.}%
783   \def\@permissionCodeOne{1049-331X}%
784 \or % TOSN
785   \def\@journalName{ACM Transactions on Sensor Networks}%
786   \def\@journalNameShort{ACM Trans. Sensor Netw.}%
787   \def\@permissionCodeOne{1550-4859}%
788 \or % TRETTS
789   \def\@journalName{ACM Transactions on Reconfigurable Technology and Systems}%
790   \def\@journalNameShort{ACM Trans. Reconfig. Technol. Syst.}%
791   \def\@permissionCodeOne{1936-7406}%
792 \or % TSAS
793   \def\@journalName{ACM Transactions on Spatial Algorithms and Systems}%
794   \def\@journalNameShort{ACM Trans. Spatial Algorithms Syst.}%
795   \def\@permissionCodeOne{2374-0353}%
796 \or % TSC
797   \def\@journalName{ACM Transactions on Social Computing}%
798   \def\@journalNameShort{ACM Trans. Soc. Comput.}%
799   \def\@permissionCodeOne{2469-7818}%
800 \or % TSLP
801   \def\@journalName{ACM Transactions on Speech and Language Processing}%
802   \def\@journalNameShort{ACM Trans. Speech Lang. Process.}%
803   \def\@permissionCodeOne{1550-4875}%
804 \or % TWEB
805   \def\@journalName{ACM Transactions on the Web}%
806   \def\@journalNameShort{ACM Trans. Web}%
807   \def\@permissionCodeOne{1559-1131}%
808 \fi
809 \ClassInfo{\@classname}{Using journal code \@journalCode}%
810 }{%
811   \ClassError{\@classname}{Incorrect journal #1}%
812 }%

```

\acmJournal And the syntactic sugar around it

```

813 \def\acmJournal#1{\setkeys{ACM}{acmJournal=#1}}

```

The defaults:

```

814 \def\@journalName{}%
815 \def\@journalNameShort{\@journalName}%
816 \def\@permissionCodeOne{XXXX-XX}%
817 \def\@permissionCodeTwo{}%

```

`\acmConference` This is the conference command

```

818 \newcommand\acmConference[4][]{%
819   \gdef\acmConference@shortname{#1}%
820   \gdef\acmConference@name{#2}%
821   \gdef\acmConference@date{#3}%
822   \gdef\acmConference@venue{#4}%
823   \ifx\acmConference@shortname\@empty
824     \gdef\acmConference@shortname{#2}%
825   \fi}
826 \acmConference[Conference'17]{ACM Conference}{July 2017}{Washington,
827   DC, USA}

```

`\subtitle` The subtitle macro

```

828 \def\subtitle#1{\def\@subtitle{#1}}
829 \subtitle{}

```

`\num@authors` The total number of authors

```

830 \newcount\num@authors
831 \num@authors=0\relax

```

`\author` Adding an author to the list of authors and addresses

```

832 \renewcommand\author[2][]{%
833   \global\advance\num@authors by 1\relax
834   \ifx\addresses\@empty
835     \if@ACM@anonymous
836       \gdef\addresses{\@author{Anonymous Author(s)}}%
837       \gdef\authors{Anonymous Author(s)}%
838     \else
839       \gdef\addresses{\@author{#2}}%
840       \gdef\authors{#2}%
841     \fi
842   \else
843     \if@ACM@anonymous\else
844       \g@addto@macro\addresses{\and\@author{#2}}%
845       \g@addto@macro\authors{\and#2}%
846     \fi
847   \fi
848   \if@ACM@anonymous
849     \ifx\shortauthors\@empty
850       \gdef\shortauthors{Anon.}%
851     \fi
852   \else
853     \def\@tempa{#1}%
854     \ifx\@tempa\@empty
855       \ifx\shortauthors\@empty
856         \gdef\shortauthors{#2}%
857       \else
858         \g@addto@macro\shortauthors{\and#2}%
859       \fi

```

```

860     \else
861         \ifx\shortauthors\@empty
862             \gdef\shortauthors{#1}%
863         \else
864             \g@addto@macro\shortauthors{\and#1}%
865         \fi
866     \fi
867 \fi}

\affiliation The macro \affiliation mimics \address from amsart. Note that it has an optional
argument we do not currently need, but keep for the possible future use.
868 \newcommand{\affiliation}[2][{}]{%
869     \if@ACM@anonymous\else
870         \g@addto@macro\addresses{\affiliation{#1}{#2}}%
871     \fi}

\email The macro \email mimics \email from amsart. Agian it has an optional argument we
do not currently need, but keep for the possible future use.
872 \renewcommand{\email}[2][{}]{%
873     \if@ACM@anonymous\else
874         \g@addto@macro\addresses{\email{#1}{#2}}%
875     \fi}

\@titlenotes The titlenotes
876 \def\@titlenotes{}

\titlenote Adding note to the title
877 \def\titlenote#1{%
878     \g@addto@macro\@title{\footnotemark}%
879     \if@ACM@anonymous
880         \g@addto@macro\@titlenotes{%
881             \stepcounter{footnote}\footnotetext{Title note}}%
882     \else
883         \g@addto@macro\@titlenotes{\stepcounter{footnote}\footnotetext{#1}}%
884     \fi}

\@subtitlenotes The subtitlenotes
885 \def\@subtitlenotes{}

\subtitlenote Adding note to the subtitle
886 \def\subtitlenote#1{%
887     \g@addto@macro\@subtitle{\footnotemark}%
888     \if@ACM@anonymous
889         \g@addto@macro\@subtitlenotes{%
890             \stepcounter{footnote}\footnotetext{Subtitle note}}%
891     \else
892         \g@addto@macro\@subtitlenotes{%
893             \stepcounter{footnote}\footnotetext{#1}}%
894     \fi}

```

\@authornotes The authornotes  
895 \def\@authornotes{}

\authornote Adding note to the author  
896 \def\authornote#1{%  
897 \if@ACM@anonymous\else  
898 \g@addto@macro\addresses{\@authornotemark}  
899 \g@addto@macro\@authornotes{%  
900 \stepcounter{footnote}\footnotetext{#1}}%  
901 \fi}

\acmVolume The current volume  
902 \def\acmVolume#1{\def\@acmVolume{#1}}  
903 \acmVolume{VV}

\acmNumber The current number  
904 \def\acmNumber#1{\def\@acmNumber{#1}}  
905 \acmNumber{NNN}

\acmArticle The current article  
906 \def\acmArticle#1{\def\@acmArticle{#1}}  
907 \acmArticle{AA}

\acmArticleSeq The sequence number  
908 \def\acmArticleSeq#1{\def\@acmArticleSeq{#1}}  
909 \acmArticleSeq{\@acmArticle}

\acmYear The current year  
910 \def\acmYear#1{\def\@acmYear{#1}}  
911 \acmYear{YYYY}

\acmMonth The current month  
912 \def\acmMonth#1{\def\@acmMonth{#1}}  
913 \acmMonth{MM}

\@acmPubDate The publication date  
914 \def\@acmPubDate{\ifcase\@acmMonth\or  
915 January\or February\or March\or April\or May\or June\or  
916 July\or August\or September\or October\or November\or  
917 December\fi~\@acmYear}

\acmPrice The price  
918 \def\acmPrice#1{\def\@acmPrice{#1}}  
919 \acmPrice{15.00}

\acmISBN The book isbn  
920 \def\acmISBN#1{\def\@acmISBN{#1}}  
921 \acmISBN{978-x-xxxx-xxxx-x/YY/MM}

<code>\acmDOI</code>	The paper doi <code>922 \def\acmDOI#1{\def\@acmDOI{#1}}</code> <code>923 \acmDOI{10.1145/nnnnnnn.nnnnnnn}</code>
<code>\if@ACM@badge</code>	Whether to print badge. Note that either left or right badge triggers it: <code>924 \newif\if@ACM@badge</code> <code>925 \@ACM@badgefalse</code>
<code>\@ACM@badge@width</code>	The width of the badge <code>926 \newlength\@ACM@badge@width</code> <code>927 \setlength\@ACM@badge@width{5pc}</code>
<code>\@ACM@title@width</code>	The width of the badge <code>928 \newlength\@ACM@title@width</code>
<code>\@ACM@badge@skip</code>	The space between the badge and the title <code>929 \newlength\@ACM@badge@skip</code> <code>930 \setlength\@ACM@badge@skip{1pc}</code>
<code>\acmBadgeR</code>	Setting the right badge <code>931 \newcommand\acmBadgeR[2][\@ACM@badgetrue</code> <code>932 \def\@acmBadgeR@url{#1}%</code> <code>933 \def\@acmBadgeR@image{#2}}</code> <code>934 \def\@acmBadgeR@url{}</code> <code>935 \def\@acmBadgeR@image{}</code>
<code>\acmBadgeL</code>	Setting the left badge <code>936 \newcommand\acmBadgeL[2][\@ACM@badgetrue</code> <code>937 \def\@acmBadgeL@url{#1}%</code> <code>938 \def\@acmBadgeL@image{#2}}</code> <code>939 \def\@acmBadgeL@url{}</code> <code>940 \def\@acmBadgeL@image{}</code>
<code>\startPage</code>	The start page of the paper <code>941 \def\startPage#1{\def\@startPage{#1}}</code> <code>942 \startPage{}</code>
<code>\terms</code>	Terms are mostly obsolete, we use CCS now. Still it makes sense to keep them for compatibility. <code>943 \def\terms#1{\def\@terms{#1}}</code> <code>944 \terms{}</code>
<code>\keywords</code>	Keywords are mostly obsolete, we use CCS now. Still it makes sense to keep them for compatibility. <code>945 \def\keywords#1{\def\@keywords{#1}}</code> <code>946 \keywords{}</code>



abstract Amsart puts abstract in the box. Since we do not know whether we will use two column mode, we prefer to save the text

```

947 \renewenvironment{abstract}{\Collect@Body\@saveabstract{}}

```

\@saveabstract And saving the abstract

```

948 \long\def\@saveabstract#1{\long\gdef\@abstract{#1}}
949 \@saveabstract{}

```

\@empty The long version of \@empty (to compare with \@abstract)

```

950 \long\def\@empty{}

```

\if@ACM@printcss Whether to print CCS

```

951 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printcss}[true]{%
952   \if@ACM@printcss
953     \ClassInfo{\@classname}{Printing CSS}%
954   \else
955     \ClassInfo{\@classname}{Suppressing CSS}%
956   \fi}{\ClassError{\@classname}{printcss must be true or false}}

```

\if@ACM@printbib Whether to print ACM bib

```

957 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printbib}[true]{%
958   \if@ACM@printcss
959     \ClassInfo{\@classname}{Printing bibformat}%
960   \else
961     \ClassInfo{\@classname}{Suppressing bibformat}%
962   \fi}{\ClassError{\@classname}{printbib must be true or false}}

```

\settopmatter The usual syntactic sugar

```

963 \def\settopmatter#1{\setkeys{@ACM@topmatter@}{#1}}

```

Now the settings

```

964 \settopmatter{printcss=true}
965 \if@ACM@manuscript
966   \settopmatter{printbib=false}
967 \else
968   \if@ACM@journal
969     \settopmatter{printbib=true}
970   \else
971     \settopmatter{printbib=false}
972   \fi
973 \fi

```

\@received The container for the paper history

```

974 \def\@received{}

```

\received The \received command

```

975 \newcommand\received[2][\def\@tempa{#1}%
976   \ifx\@tempa\@empty

```

```

977 \ifx\@received\@empty
978 \gdef\@received{Received #2}%
979 \else
980 \g@addto@macro{\@received}{; revised #2}%
981 \fi
982 \else
983 \ifx\@received\@empty
984 \gdef\@received{#1 #2}%
985 \else
986 \g@addto@macro{\@received}{; #1 #2}%
987 \fi
988 \fi}
989 \AtEndDocument{%
990 \ifx\@received\@empty\else
991 \par\bigskip\noindent\small\normalfont\@received\par
992 \fi}

```

### 3.10 Concepts system

We exclude CCSXML stuff generated by the ACM system:

```

993 \RequirePackage{comment}
994 \excludecomment{CCSXML}

```

\@concepts This is the storage macro for concepts

```

995 \let\@concepts\@empty

```

\ccsdesc The first argument is the significance, the second is the concept(s)

```

996 \newcommand\ccsdesc[2][100]{%
997 \ccsdesc@parse#1~#2~}

```

\ccsdesc@parse The parser of the expression Significance~General~Specific:

```

998 \def\ccsdesc@parse#1~#2~#3~{%
999 \expandafter\ifx\csname CCS@#2\endcsname\relax
1000 \expandafter\gdef\csname CCS@#2\endcsname{\textbullet\textbf{#2} $\to$ }%
1001 \g@addto@macro{\@concepts}{\csname CCS@#2\endcsname}\fi
1002 \expandafter\g@addto@macro\expandafter{\csname CCS@#2\endcsname}{%
1003 \ifnum#1>499\textbf{#3; }\else
1004 \ifnum#1>299\textit{#3; }\else
1005 #3; \fi\fi}}

```

### 3.11 Copyright system

This is from acmcopyright.sty

\if@printcopyright A flag whether to print copyright symbol

```

1006 \newif\if@printcopyright
1007 \@printcopyrighttrue

```

```

\if@printpermission Whether to print permission block
1008 \newif\if@printpermission
1009 \@printpermissiontrue

\if@acmowned Whether ACM owns the rights to the paper
1010 \newif\if@acmowned
1011 \@acmownedtrue

Keys:
1012 \define@choicekey*{ACM@}{acmcopyrightmode}[%
1013 \acm@copyrightinput\acm@copyrightmode]{none,acmcopyright,acmlicensed,%
1014 rightsretained,usgov,usgovmixed,cagov,cagovmixed,%
1015 licensedusgovmixed,licensedcagovmixed,othergov,licensedothergov}{%
1016 \@printpermissiontrue
1017 \@printcopyrighttrue
1018 \@acmownedtrue
1019 \ifnum\acm@copyrightmode=0\relax % none
1020 \@printpermissionfalse
1021 \@printcopyrightfalse
1022 \@acmownedfalse
1023 \fi
1024 \ifnum\acm@copyrightmode=2\relax % acmlicensed
1025 \@acmownedfalse
1026 \fi
1027 \ifnum\acm@copyrightmode=3\relax % rightsretained
1028 \@acmownedfalse
1029 \fi
1030 \ifnum\acm@copyrightmode=4\relax % usgov
1031 \@printpermissiontrue
1032 \@printcopyrightfalse
1033 \@acmownedfalse
1034 \fi
1035 \ifnum\acm@copyrightmode=6\relax % cagov
1036 \@acmownedfalse
1037 \fi
1038 \ifnum\acm@copyrightmode=8\relax % licensedusgovmixed
1039 \@acmownedfalse
1040 \fi
1041 \ifnum\acm@copyrightmode=9\relax % licensedcagovmixed
1042 \@acmownedfalse
1043 \fi
1044 \ifnum\acm@copyrightmode=10\relax % othergov
1045 \@acmownedtrue
1046 \fi
1047 \ifnum\acm@copyrightmode=11\relax % licensedothergov
1048 \@acmownedfalse
1049 \@printcopyrightfalse
1050 \fi}

\setcopyright This is the syntactic sugar around setting keys.

```

```

1051 \def\setcopyright#1{\setkeys{ACM@}{acmcopyrightmode=#1}}
1052 \setcopyright{acmcopyright}

```

\@copyrightowner Here is the owner of the copyright

```

1053 \def\@copyrightowner{%
1054   \ifcase\acm@copyrightmode\relax % none
1055   \or % acmcopyright
1056   ACM\@.
1057   \or % acmlicensed
1058   Copyright held by the owner/author(s). Publication rights licensed to
1059   ACM\@.
1060   \or % rightsretained
1061   Copyright held by the owner/author(s).
1062   \or % usgov
1063   \or % usgovmixed
1064   ACM\@.
1065   \or % cagov
1066   Crown in Right of Canada.
1067   \or %cagovmixed
1068   ACM\@.
1069   \or %licensedusgovmixed
1070   Copyright held by the owner/author(s). Publication rights licensed to
1071   ACM\@.
1072   \or %licensedcagovmixed
1073   Copyright held by the owner/author(s). Publication rights licensed to
1074   ACM\@.
1075   \or % othergov
1076   ACM\@.
1077   \or % licensedothergov
1078   \fi}

```

\@formatdoi Print a clickable doi

```

1079 \def\@formatdoi#1{\url{http://dx.doi.org/#1}}

```

\@copyrightpermission The canned permission block.

```

1080 \def\@copyrightpermission{%
1081   \ifcase\acm@copyrightmode\relax % none
1082   \or % acmcopyright
1083   Permission to make digital or hard copies of all or part of this
1084   work for personal or classroom use is granted without fee provided
1085   that copies are not made or distributed for profit or commercial
1086   advantage and that copies bear this notice and the full citation on
1087   the first page. Copyrights for components of this work owned by
1088   others than ACM must be honored. Abstracting with credit is
1089   permitted. To copy otherwise, or republish, to post on servers or to
1090   redistribute to lists, requires prior specific permission
1091   and\hspace*{.5pt}/or a fee. Request permissions from
1092   permissions@acm.org.
1093   \or % acmlicensed

```

1094 Permission to make digital or hard copies of all or part of this  
 1095 work for personal or classroom use is granted without fee provided  
 1096 that copies are not made or distributed for profit or commercial  
 1097 advantage and that copies bear this notice and the full citation on  
 1098 the first page. Copyrights for components of this work owned by  
 1099 others than the author(s) must be honored. Abstracting with credit  
 1100 is permitted. To copy otherwise, or republish, to post on servers  
 1101 or to redistribute to lists, requires prior specific permission  
 1102 and\hspace\*{.5pt}/or a fee. Request permissions from  
 1103 permissions@acm.org.  
 1104 \or % rightsretained  
 1105 Permission to make digital or hard copies of part or all of this work  
 1106 for personal or classroom use is granted without fee provided that  
 1107 copies are not made or distributed for profit or commercial advantage  
 1108 and that copies bear this notice and the full citation on the first  
 1109 page. Copyrights for third-party components of this work must be  
 1110 honored. For all other uses, contact the  
 1111 owner\hspace\*{.5pt}/author(s).  
 1112 \or % usgov  
 1113 This paper is authored by an employee(s) of the United States  
 1114 Government and is in the public domain. Non-exclusive copying or  
 1115 redistribution is allowed, provided that the article citation is  
 1116 given and the authors and agency are clearly identified as its  
 1117 source.  
 1118 \or % usgovmixed  
 1119 ACM acknowledges that this contribution was authored or co-authored  
 1120 by an employee, or contractor of the national government. As such,  
 1121 the Government retains a nonexclusive, royalty-free right to  
 1122 publish or reproduce this article, or to allow others to do so, for  
 1123 Government purposes only. Permission to make digital or hard copies  
 1124 for personal or classroom use is granted. Copies must bear this  
 1125 notice and the full citation on the first page. Copyrights for  
 1126 components of this work owned by others than ACM must be  
 1127 honored. To copy otherwise, distribute, republish, or post,  
 1128 requires prior specific permission and\hspace\*{.5pt}/or a  
 1129 fee. Request permissions from permissions@acm.org.  
 1130 \or % cagov  
 1131 This article was authored by employees of the Government of Canada.  
 1132 As such, the Canadian government retains all interest in the  
 1133 copyright to this work and grants to ACM a nonexclusive,  
 1134 royalty-free right to publish or reproduce this article, or to allow  
 1135 others to do so, provided that clear attribution is given both to  
 1136 the authors and the Canadian government agency employing them.  
 1137 Permission to make digital or hard copies for personal or classroom  
 1138 use is granted. Copies must bear this notice and the full citation  
 1139 on the first page. Copyrights for components of this work owned by  
 1140 others than the Canadian Government must be honored. To copy  
 1141 otherwise, distribute, republish, or post, requires prior specific  
 1142 permission and\hspace\*{.5pt}/or a fee. Request permissions from  
 1143 permissions@acm.org.

```

1144 \or % cagovmixed
1145 ACM acknowledges that this contribution was co-authored by an
1146 affiliate of the national government of Canada. As such, the Crown
1147 in Right of Canada retains an equal interest in the copyright.
1148 Reprints must include clear attribution to ACM and the author's
1149 government agency affiliation. Permission to make digital or hard
1150 copies for personal or classroom use is granted. Copies must bear
1151 this notice and the full citation on the first page. Copyrights for
1152 components of this work owned by others than ACM must be honored.
1153 To copy otherwise, distribute, republish, or post, requires prior
1154 specific permission and\hspace*{.5pt}/or a fee. Request permissions
1155 from permissions@acm.org.
1156 \or % licensedusgovmixed
1157 Publication rights licensed to ACM\@. ACM acknowledges that this
1158 contribution was authored or co-authored by an employee, contractor
1159 or affiliate of the United States government. As such, the
1160 Government retains a nonexclusive, royalty-free right to publish or
1161 reproduce this article, or to allow others to do so, for Government
1162 purposes only.
1163 \or % licensedcagovmixed
1164 Publication rights licensed to ACM\@. ACM acknowledges that this
1165 contribution was authored or co-authored by an employee, contractor
1166 or affiliate of the national government of Canada. As such, the
1167 Government retains a nonexclusive, royalty-free right to publish or
1168 reproduce this article, or to allow others to do so, for Government
1169 purposes only.
1170 \or % othergov
1171 ACM acknowledges that this contribution was authored or co-authored
1172 by an employee, contractor or affiliate of a national government. As
1173 such, the Government retains a nonexclusive, royalty-free right to
1174 publish or reproduce this article, or to allow others to do so, for
1175 Government purposes only.
1176 \or % licensedothergov
1177 Publication rights licensed to ACM\@. ACM acknowledges that this
1178 contribution was authored or co-authored by an employee, contractor
1179 or affiliate of a national government. As such, the Government
1180 retains a nonexclusive, royalty-free right to publish or reproduce
1181 this article, or to allow others to do so, for Government purposes
1182 only.
1183 \fi}

\copyrightyear By default, the copyright year is the same as \acmYear, but one can override this:
1184 \def\copyrightyear#1{\def\@copyrightyear{#1}}
1185 \copyrightyear{\@acmYear}

\@teaserfigures The teaser figures container
1186 \def\@teaserfigures{}

teaserfigure The teaser figure
1187 \newenvironment{teaserfigure}{\Collect@Body\@saveteaser}{}

```

\@saveteaser Saving the teaser  
1188 \long\def\@saveteaser#1{\g@addto@macro\@teaserfigures{\@teaser{#1}}}

\thanks We redefine amsart \thanks, so the anonymous key works  
1189 \renewcommand{\thanks}[1]{%  
1190 \ifnotempty{#1}{%  
1191 \if@ACM@anonymous  
1192 \g@addto@macro\thankses{\thanks{A note}}%  
1193 \else  
1194 \g@addto@macro\thankses{\thanks{#1}}%  
1195 \fi}}

### 3.12 Typesetting top matter

\mktitle@bx Some of our formats use two column design, some use one column one. In all cases we use wide title. Thus we typeset the top matter in a special box to be use in the construction \@twocolumn[*{box}*].

1196 \newbox\mktitle@bx

\maketitle The (in)famous \maketitle. Note that in sigchi-a mode authors are *not* in the title box.

1197 \def\maketitle{%  
1198 \if@ACM@anonymous  
1199 % Anonymize omission of \author-s  
1200 \ifnum\num@authors=0\author{}\fi  
1201 \fi  
1202 \begingroup  
1203 \let\@footnotemark\@footnotemark@nolink  
1204 \let\@footnotetext\@footnotetext@nolink  
1205 \renewcommand\thefootnote{\@fnsymbol\c@footnote}%  
1206 \@topnum\z@ % this prevents figures from falling at the top of page  
1207 % 1  
1208 \hsize=\textwidth  
1209 \def\@makefnmark{\hbox{\@textsuperscript{\@thefnmark}}}  
1210 \mktitle\if@ACM@sigchiamode\else\mkauthors\fi\mkteasers  
1211 \printtopmatter  
1212 \if@ACM@sigchiamode\mkauthors\fi  
1213 \setcounter{footnote}{0}%  
1214 \def\@makefnmark{\hbox{\@textsuperscript{\normalfont\@thefnmark}}}  
1215 \@titlenotes  
1216 \@subtitlenotes  
1217 \@authornotes  
1218 \let\@makefnmark\relax \let\@thefnmark\relax  
1219 \let\@makefntext\noindent  
1220 \ifx\@empty\thankses\else  
1221 \@footnotetext{\def\par{\let\par\@par}\parindent\z@\@setthanks}%  
1222 \fi  
1223 \footnotetextcopyrightpermission{\parindent\z@\parskip0.1\baselineskip  
1224 \if@ACM@authorversion\else  
1225 \if@printpermission\copyrightpermission\par\fi

```

1226 \fi
1227 \if@ACM@manuscript\else
1228   \if@ACM@journal\else % Print the conference short name
1229     {\itshape \acmConference@shortname, \acmConference@venue}\par
1230   \fi
1231 \fi
1232 \if@printcopyright
1233   \copyright\ \@copyrightyear\ \@copyrightowner\
1234 \else
1235   \@copyrightyear.\
1236 \fi
1237 \if@ACM@manuscript
1238   Manuscript submitted to ACM\
1239 \else
1240   \if@ACM@authorversion
1241     This is the author's version of the work. It is posted here for
1242     your personal use. Not for redistribution. The definitive Version
1243     of Record was published in
1244     \if@ACM@journal
1245       \emph{\@journalName}%
1246     \else
1247       \emph{Proceedings of \acmConference@name, \acmConference@date}%
1248     \fi
1249     \ifx\@acmDOI\@empty
1250       .
1251     \else
1252       , \@formatdoi{\@acmDOI}.
1253     \fi\
1254   \else
1255     \if@ACM@journal
1256       \@permissionCodeOne/\@acmYear/\@acmMonth-ART\@acmArticle\
1257       \$\@acmPrice\
1258     \else % Conference
1259       \@acmISBN
1260       \ifx\@acmPrice\@empty.\else\dots$\@acmPrice\fi\
1261     \fi
1262   \fi
1263 \fi
1264 DOI: \nolinkurl{\@acmDOI}}%
1265 \endgroup
1266 \setcounter{footnote}{0}%
1267 \mkabstract
1268 \if@ACM@printcss
1269   \ifx\@concepts\@empty\else\bgroup
1270     {\@specialsection{CCS Concepts}%
1271     \@concepts\par}\egroup
1272   \fi
1273 \fi
1274 \if\@terms\@empty\else\bgroup
1275   {\@specialsection{General Terms}%

```



```

1276         \@terms\par}\egroup
1277     \fi
1278     \ifx\@keywords\@empty\else\bgroup
1279         {\if@ACM@journal
1280             \@specialsection{Additional Key Words and Phrases}%
1281         \else
1282             \@specialsection{Keywords}%
1283         \fi
1284         \@keywords}\par\egroup
1285     \fi
1286     \andify\authors
1287     \andify\shortauthors
1288     \global\let\authors=\authors
1289     \global\let\shortauthors=\shortauthors
1290     \if@ACM@printbib
1291         \@mkbibcitation
1292     \fi
1293     \hypersetup{pdfauthor={\authors},
1294         pdftitle={\@title}, pdfkeywords={\@concepts}}%
1295     \@printendtopmatter
1296     \@afterindentfalse
1297     \@afterheading
1298 }

```

`\@specialsection` This macro starts section for proceedings and uses small for journals

```

1299 \def\@specialsection#1{%
1300     \ifcase\ACM@format@nr
1301     \relax % manuscript
1302     \par\medskip\small\noindent#1: %
1303     \or % acmsmall
1304     \par\medskip\small\noindent#1: %
1305     \or % acmlarge
1306     \par\medskip\small\noindent#1: %
1307     \or % acmtog
1308     \par\medskip\small\noindent#1: %
1309     \or % sigconf
1310     \section*{#1}%
1311     \or % siggraph
1312     \section*{#1}%
1313     \or % sigplan
1314     \paragraph*{#1}%
1315     \or % sigchi
1316     \section*{#1}%
1317     \or % sigchi-a
1318     \section*{#1}%
1319     \fi}

```

`\@printtopmatter` The printing of top matter starts the new page, and uses the given title box. Note that for sigchi-a we print badges here rather than in `\mktitle` since we want them on the margins.

```

1320 \def\@printtopmatter{%
1321   \ifx\@startPage\@empty
1322     \gdef\@startPage{1}%
1323   \else
1324     \setcounter{page}{\@startPage}%
1325   \fi
1326   \thispagestyle{firstpagestyle}%
1327   \noindent
1328   \ifcase\ACM@format@nr
1329   \relax % manuscript
1330     \box\mktitle@bx\par
1331     \noindent\hrulefill\par
1332   \or % acmsmall
1333     \box\mktitle@bx\par
1334     \noindent\hrulefill\par
1335   \or % acmlarge
1336     \box\mktitle@bx\par
1337     \noindent\hrulefill\par
1338   \or % acmtog
1339     \twocolumn[\box\mktitle@bx]%
1340   \or % sigconf
1341     \twocolumn[\box\mktitle@bx]%
1342   \or % siggraph
1343     \twocolumn[\box\mktitle@bx]%
1344   \or % sigplan
1345     \twocolumn[\box\mktitle@bx]%
1346   \or % sigchi
1347     \twocolumn[\box\mktitle@bx]%
1348   \or % sigchi-a
1349     \par\box\mktitle@bx\par\bigskip
1350     \if@ACM@badge
1351       \marginpar{\noindent
1352         \ifx\@acmBadgeL@image\@empty\else
1353           \href{\@acmBadgeL@url}{%
1354             \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}%
1355           \hskip\@ACM@badge@skip
1356         \fi
1357         \ifx\@acmBadgeR@image\@empty\else
1358           \href{\@acmBadgeR@url}{%
1359             \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}%
1360           \fi}%
1361     \fi
1362   \fi
1363 }

```

\mktitle The title of the article

```

1364 \def\@mktitle{%
1365   \ifcase\ACM@format@nr
1366   \relax % manuscript
1367     \@mktitle@i

```

```

1368 \or % acmsmall
1369 \mktitle@i
1370 \or % acmlarge
1371 \mktitle@i
1372 \or % acmtog
1373 \mktitle@i
1374 \or % sigconf
1375 \mktitle@iii
1376 \or % siggraph
1377 \mktitle@iii
1378 \or % sigplan
1379 \mktitle@iii
1380 \or % sigchi
1381 \mktitle@iii
1382 \or % sigchi-a
1383 \mktitle@iv
1384 \fi
1385 }

\@titlefont The font to typeset title
1386 \def\@titlefont{%
1387 \ifcase\ACM@format@nr
1388 \relax % manuscript
1389 \LARGE\bfseries\sffamily
1390 \or % acmsmall
1391 \LARGE\bfseries\sffamily
1392 \or % acmlarge
1393 \LARGE\bfseries\sffamily
1394 \or % acmtog
1395 \Huge\sffamily
1396 \or % sigconf
1397 \Huge\sffamily\bfseries
1398 \or % siggraph
1399 \Huge\sffamily\bfseries
1400 \or % sigplan
1401 \Huge\bfseries
1402 \or % sigchi
1403 \Huge\sffamily\bfseries
1404 \or % sigchi-a
1405 \Huge\bfseries
1406 \fi}

\@subtitlefont The font to typeset title
1407 \def\@subtitlefont{%
1408 \ifcase\ACM@format@nr
1409 \relax % manuscript
1410 \mdseries
1411 \or % acmsmall
1412 \mdseries
1413 \or % acmlarge

```

```

1414 \mdseries
1415 \or % acmtog
1416 \LARGE
1417 \or % sigconf
1418 \LARGE\mdseries
1419 \or % siggraph
1420 \LARGE\mdseries
1421 \or % sigplan
1422 \LARGE\mdseries
1423 \or % sigchi
1424 \LARGE\mdseries
1425 \or % sigchi-a
1426 \mdseries
1427 \fi}

```

`\mktitle@i` The version of `\mktitle` for most journals

```

1428 \def\mktitle@i{\hsize=\textwidth
1429 \ACM@title@width=\hsize
1430 \ifx\acmBadgeL@image\empty\else
1431 \advance\ACM@title@width by -\ACM@badge@width
1432 \advance\ACM@title@width by -\ACM@badge@skip
1433 \fi
1434 \ifx\acmBadgeR@image\empty\else
1435 \advance\ACM@title@width by -\ACM@badge@width
1436 \advance\ACM@title@width by -\ACM@badge@skip
1437 \fi
1438 \setbox\mktitle@bx=\vbox{\noindent\@titlefont
1439 \ifx\acmBadgeL@image\empty\else
1440 \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\acmBadgeL@url}{%
1441 \includegraphics[width=\ACM@badge@width]{\acmBadgeL@image}}}%
1442 \hskip\ACM@badge@skip
1443 \fi
1444 \parbox[t]{\ACM@title@width}{\raggedright
1445 \@titlefont\noindent
1446 \@title
1447 \ifx\@subtitle\empty\else
1448 \par\noindent{\@subtitlefont\@subtitle}
1449 \fi}%
1450 \ifx\acmBadgeR@image\empty\else
1451 \hskip\ACM@badge@skip
1452 \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\acmBadgeR@url}{%
1453 \includegraphics[width=\ACM@badge@width]{\acmBadgeR@image}}}%
1454 \fi
1455 \par\bigskip}}%

```

`\mktitle@ii` The version of `\mktitle` for TOG. Since v1.06 is subsumed by the `\mktitle@i` macro

`\mktitle@iii` The version of `\mktitle` for sigproc. Note that since the title is centered, we leave the space for the left badge even if only the right badge is defined.

```

1456 \def\mktitle@iii{\hsize=\textwidth

```

```

1457 \setbox\mktitle@bx=\vbox{\@titlefont\centering
1458 \@ACM@title@width=\hsize
1459 \if@ACM@badge
1460 \advance\@ACM@title@width by -2\@ACM@badge@width
1461 \advance\@ACM@title@width by -2\@ACM@badge@skip
1462 \parbox[b]{\@ACM@badge@width}{\strut
1463 \ifx\@acmBadgeL@image\@empty\else
1464 \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeL@url}{%
1465 \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}}%
1466 \fi}%
1467 \hskip\@ACM@badge@skip
1468 \fi
1469 \parbox[t]{\@ACM@title@width}{\centering\@titlefont
1470 \@title
1471 \ifx\@subtitle\@empty\else
1472 \par\noindent{\@subtitlefont\@subtitle}
1473 \fi
1474 }%
1475 \if@ACM@badge
1476 \hskip\@ACM@badge@skip
1477 \parbox[b]{\@ACM@badge@width}{\strut
1478 \ifx\@acmBadgeR@image\@empty\else
1479 \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeR@url}{%
1480 \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}}%
1481 \fi}%
1482 \fi
1483 \par\bigskip}}%

\@mktitle@iv The version of \@mktitle for sigchi-a
1484 \def\@mktitle@iv{\hsize=\textwidth
1485 \setbox\mktitle@bx=\vbox{\raggedright\leftskip5pc\@titlefont
1486 \noindent\leavevmode\leaders\hrule height 2pt\hfill\kern0pt\par
1487 \noindent\@title
1488 \ifx\@subtitle\@empty\else
1489 \par\noindent\@subtitlefont\@subtitle
1490 \fi
1491 \par\bigskip}}%

\@mkauthors Typesetting authors
1492 \def\@mkauthors{\begin{group}
1493 \hsize=\textwidth
1494 \ifcase\ACM@format@nr
1495 \relax % manuscript
1496 \@mkauthors@i
1497 \or % acmsmall
1498 \@mkauthors@i
1499 \or % acmlarge
1500 \@mkauthors@i
1501 \or % acmtog
1502 \@mkauthors@ii

```

```

1503 \or % sigconf
1504     \@mkauthors@iii
1505 \or % siggraph
1506     \@mkauthors@iii
1507 \or % sigplan
1508     \@mkauthors@iii
1509 \or % sigchi
1510     \@mkauthors@iii
1511 \or % sigchi-a
1512     \@mkauthors@iv
1513 \fi
1514 \endgroup
1515 }

\@authorfont Somehow different conferences use different fonts for author names. Why?
1516 \def\@authorfont{\Large\sffamily}

\@affiliationfont Font for affiliations
1517 \def\@affiliationfont{\normalsize\normalfont}

Adjusting fonts for different formats
1518 \ifcase\ACM@format@nr
1519 \relax % manuscript
1520 \or % acmsmall
1521 \or % acmlarge
1522 \or % acmtog
1523     \def\@authorfont{\LARGE\sffamily}
1524     \def\@affiliationfont{\large}
1525 \or % sigconf
1526     \def\@authorfont{\LARGE}
1527     \def\@affiliationfont{\large}
1528 \or % siggraph
1529     \def\@authorfont{\normalsize\normalfont}
1530     \def\@affiliationfont{\normalsize\normalfont}
1531 \or % sigplan
1532     \def\@authorfont{\Large\normalfont}
1533     \def\@affiliationfont{\normalsize\normalfont}
1534 \or % sigchi
1535     \def\@authorfont{\bfseries}
1536     \def\@affiliationfont{\mdseries}
1537 \or % sigchi-a
1538     \def\@authorfont{\bfseries}
1539     \def\@affiliationfont{\mdseries}
1540 \fi

\@mkauthors@i This is version used in most formats. Note that \and between authors with the same
affiliation becomes _and_:
1541 \def\@mkauthors@i{%
1542     \def\@currentauthors{}%

```

```

1543 \def\and{%
1544   \andify\@currentauthors\par\noindent
1545   \@currentauthors\def\@currentauthors{}}%
1546 \def\@author##1{%
1547   \ifx\@currentauthors\@empty
1548     \gdef\@currentauthors{\@authorfont\MakeUppercase{##1}}%
1549   \else
1550     \g@addto@macro{\@currentauthors}{\and\MakeUppercase{##1}}%
1551   \fi
1552   \def\and{}}%
1553 \def\email##1##2{%
1554 \def\affiliation##1##2{%
1555   \ifx\@currentauthors\@empty\else
1556     \andify\@currentauthors\par\noindent\@currentauthors
1557   \fi
1558   \def\@currentauthors{}\def\@tempa{##2}\ifx\@tempa\@empty\else
1559     \unskip, {\@affiliationfont##2}\fi\def\and{\par\noindent}}%
1560 \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par\medskip
1561   \noindent\addresses\andify\@currentauthors\par\noindent\@currentauthors\par\medskip}%
1562 }

```

\mkauthors@ii This is version used in acmtog. A more vertical design

```

1563 \def\mkauthors@ii{\par\medskip
1564   \def\@currentauthors{}}%
1565   \def\and{}}%
1566   \def\@author##1{%
1567     \ifx\@currentauthors\@empty
1568       \gdef\@currentauthors{\@authorfont
1569         \MakeUppercase{##1}}%
1570     \else
1571       \g@addto@macro{\@currentauthors}{\and\MakeUppercase{##1}}%
1572     \fi\def\and{}}%
1573   \def\email##1##2{%
1574   \def\affiliation##1##2{%
1575     \ifx\@currentauthors\@empty\else
1576       \andify\@currentauthors\par\noindent\@currentauthors
1577     \fi
1578     \def\@currentauthors{}\def\@tempa{##2}\ifx\@tempa\@empty\else
1579       \par\noindent{\@affiliationfont##2}\fi
1580     \def\and{\par\noindent{\@affiliationfont and}\par
1581       \noindent\def\and{}}}%
1582   \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par\medskip
1583     \noindent\addresses\andify\@currentauthors\par\noindent\@currentauthors\par\medskip}%
1584   }

```

\author@bx The box to put individual author to

```
1585 \newbox\author@bx
```

\author@bx@wd The width of the author box

```
1586 \newdimen\author@bx@wd
```

`\author@bx@sep` The separation between the author boxes

```
1587 \newskip\author@bx@sep
1588 \author@bx@sep=1pc\relax
```

`\mkauthors@iii` The sigconf version. Here we use centered design with each author in a separate box.

```
1589 \def\mkauthors@iii{%
```

First, we need to determine the design of the author strip. The boxes are separated by `\author@bx@sep` plus two `\author@bx@sep` margins. This means that each box must be of width  $(\texttt{\textbackslash textwidth} - \texttt{\textbackslash author@bx@sep})/N - \texttt{\textbackslash author@bx@sep}$ , where  $N$  is the number of boxes per row.

```
1590 \author@bx@wd=\textwidth\relax
1591 \advance\author@bx@wd by -\author@bx@sep\relax
1592 \ifcase\num@authors
1593 \relax % 0?
1594 \or % 1=one author per row
1595 \or % 2=two authors per row
1596 \divide\author@bx@wd by \num@authors\relax
1597 \or % 3=three authors per row
1598 \divide\author@bx@wd by \num@authors\relax
1599 \or % 4=two authors per row (!)
1600 \divide\author@bx@wd by 2\relax
1601 \else % three authors per row
1602 \divide\author@bx@wd by 3\relax
1603 \fi
1604 \advance\author@bx@wd by -\author@bx@sep\relax
```

Now, parsing of `\addresses`:

```
1605 \gdef\@currentauthors{}%
1606 \gdef\@currentaffiliation{}%
1607 \def\@author##1{\ifx\@currentauthors\@empty
1608 \gdef\@currentauthors{\par##1}%
1609 \else
1610 \g@addto@macro\@currentauthors{\quad##1}%
1611 \fi}%
1612 \def\email##1##2{\ifx\@currentaffiliation\@empty
1613 \gdef\@currentaffiliation{\nolinkurl{##2}}%
1614 \else
1615 \g@addto@macro\@currentaffiliation{\par\nolinkurl{##2}}%
1616 \fi}%
1617 \def\affiliation##1##2{\ifx\@currentaffiliation\@empty
1618 \gdef\@currentaffiliation{##2}%
1619 \else
1620 \g@addto@macro\@currentaffiliation{\par##2}%
1621 \fi}%

```

Actual typesetting is done by `\and` macro

```
1622 \def\and{\bgroup\hsize=\author@bx@wd\def\and{\quad}%
1623 \global\setbox\author@bx=\vtop{\centering
1624 \authorfont\@currentauthors\par\affiliationfont
```



```

1625 \currentaffiliation}\egroup
1626 \box\author@bx\hspace{\author@bx@sep}%
1627 \gdef\currentauthors{}%
1628 \gdef\currentaffiliation{}}%

```

And here we use it:

```

1629 \hsize=\textwidth
1630 \global\setbox\mktitle@bx=\vbox{\noindent
1631 \box\mktitle@bx\par\medskip\leavevmode
1632 \lineskip=1pc\relax\centering\hspace*{-1em}%
1633 \addresses\and\par\bigskip}}

```

\mkauthors@iv The sigchia version. Now we put authors in the main text, and no more than 2 authors per line.

```

1634 \def\mkauthors@iv{%

```

First, we need to determine the design of the author strip. The boxes are separated by \author@bx@sep plus two \author@bx@sep margins. This means that each box must be of width  $(\text{textwidth} - \text{author@bx@sep})/N - \text{author@bx@sep}$ , where  $N$  is the number of boxes per row.

```

1635 \author@bx@wd=\columnwidth\relax
1636 \advance\author@bx@wd by -\author@bx@sep\relax
1637 \ifcase\num@authors
1638 \relax % 0?
1639 \or % 1=one author per row
1640 \else % 2=two authors per row
1641 \divide\author@bx@wd by 2\relax
1642 \fi
1643 \advance\author@bx@wd by -\author@bx@sep\relax

```

Now, parsing of \addresses:

```

1644 \gdef\currentauthors{}%
1645 \gdef\currentaffiliation{}%
1646 \def\author##1{\ifx\currentauthors\empty
1647 \gdef\currentauthors{\par##1}%
1648 \else
1649 \g@addto@macro\currentauthors{\quad##1}%
1650 \fi}%
1651 \def\email##1##2{\ifx\currentaffiliation\empty
1652 \gdef\currentaffiliation{\nolinkurl{##2}}%
1653 \else
1654 \g@addto@macro\currentaffiliation{\par\nolinkurl{##2}}%
1655 \fi}%
1656 \def\affiliation##1##2{\ifx\currentaffiliation\empty
1657 \gdef\currentaffiliation{##2}%
1658 \else
1659 \g@addto@macro\currentaffiliation{\par##2}%
1660 \fi}%

```

Actual typesetting is done by \and macro

```

1661 \def\and{\bgroup\hsize=\author@bx@wd\def\and{\quad}%

```

```

1662 \global\setbox\author@bx=\vtop{\raggedright
1663   \@authorfont\@currentauthors\par\@affiliationfont
1664   \@currentaffiliation}\egroup
1665 \box\author@bx\hskip\author@bx@sep
1666 \gdef\@currentauthors{}%
1667 \gdef\@currentaffiliation{}}%

```

And here we use it:

```

1668 \bgroup\hsize=\columnwidth
1669 \par\raggedright\leftskip=\z@
1670 \lineskip=1pc\noindent\addresses\and\par\bigskip\egroup}

```

\@authornotemark Adding footnotemark to authors

```

1671 \def\@authornotemark{\g@addto@macro\@currentauthors{\footnotemark}}

```

\@mkteasers Typesetting teasers

```

1672 \def\@mkteasers{%
1673   \ifx\@teaserfigures\@empty\else
1674     \def\@teaser##1{\par\bigskip\bgroup
1675       \captionsetup{type=figure}##1\egroup\par}
1676     \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par
1677       \noindent\@teaserfigures\par\medskip}%
1678     \fi}

```

\@setaddresses This is an amsart macro, which we do not need.

```

1679 \def\@setaddresses{}

```

\@mkabstract Typesetting abstract

```

1680 \def\@mkabstract{\bgroup
1681   \ifx\@abstract\@empty\else
1682     {\if@ACM@journal
1683       \small\noindent
1684     \else
1685       \section*{Abstract}%
1686     \fi
1687     \@abstract\par}%
1688   \fi\egroup}

```

\@mkbibcitation Print bibcitation format

```

1689 \def\@mkbibcitation{\bgroup
1690   \par\medskip\small\noindent{\bfseries ACM Reference format:}\par
1691   \noindent\authors. \@acmYear. \@title. \textit{\@journalNameShort}
1692   \@acmVolume, \@acmNumber, Article~\@acmArticle\
1693   (\@acmPubDate), \ref{TotPages}~pages.\par
1694   \noindent DOI: \nolinkurl{\@acmDOI}
1695 \par\egroup}

```

\@printendtopmatter End the top matter

```

1696 \def\@printendtopmatter{\par\medskip

```

```

1697 \ifcase\ACM@format@nr
1698 \relax % manuscript
1699 \noindent\hrulefill\par\medskip
1700 \or % acmsmall
1701 \noindent\hrulefill\par\medskip
1702 \or % acmlarge
1703 \noindent\hrulefill\par\medskip
1704 \or % acmtog
1705 \par\bigskip
1706 \or % sigconf
1707 \par\bigskip
1708 \or % siggraph
1709 \par\bigskip
1710 \or % sigplan
1711 \par\bigskip
1712 \or % sigchi
1713 \par\bigskip
1714 \or % sigchi-a
1715 \fi
1716 }

```

\setthanks We redefine \setthanks using \long

```

1717 \def\setthanks{\long\def\thanks##1{\par##1\@addpunct.}\thankses}

```

### 3.13 Headers and Footers

We use fancyhdr for our headers and footers:

```

1718 \RequirePackage{fancyhdr}

```

\ACM@linecount@bx This is the box displayed in the review mode

```

1719 \if@ACM@review
1720 \newsavebox{\ACM@linecount@bx}
1721 \savebox{\ACM@linecount@bx}[4em][t]{\parbox[t]{4em}{%
1722 \newlength\ACM@linecount@bxht\setlength{\ACM@linecount@bxht}{-\baselineskip}
1723 \@tempcnta\@ne\relax
1724 \loop{\color{ACMRed}\scriptsize\the\@tempcnta}\@ne
1725 \advance\@tempcnta by \@ne
1726 \addtolength{\ACM@linecount@bxht}{\baselineskip}
1727 \ifdim\ACM@linecount@bxht<\textheight\repeat}}
1728 \fi

```

\ACM@linecount How to display the box

```

1729 \def\ACM@linecount{%
1730 \if@ACM@review
1731 \begin{picture}(0,0)%
1732 \put(-26,-22){\usebox{\ACM@linecount@bx}}%
1733 \end{picture}%
1734 \fi}

```

standardpagestyle The pagestyle for all pages but the first one

```

1735 \fancypagestyle{standardpagestyle}{%
1736   \fancyhf{}%
1737   \renewcommand{\headrulewidth}{\z@}%
1738   \renewcommand{\footrulewidth}{\z@}%
1739   \ifcase\ACM@format@nr
1740   \relax % manuscript
1741     \fancyhead[RE]{\thepage}%
1742     \fancyhead[LO]{\ACM@linecount\thepage}%
1743     \fancyhead[LE]{\ACM@linecount\shortauthors}%
1744     \fancyhead[RO]{\shorttitle}%
1745     \fancyfoot[RO,LE]{\footnotesize Manuscript submitted to ACM}%
1746   \or % acmsmall
1747     \fancyhead[RE]{\sffamily\@acmArticle:\thepage}%
1748     \fancyhead[LO]{\ACM@linecount\sffamily\@acmArticle:\thepage}%
1749     \fancyhead[LE]{\ACM@linecount\sffamily\shortauthors}%
1750     \fancyhead[RO]{\sffamily\shorttitle}%
1751     \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1752       \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
1753   \or % acmlarge
1754     \fancyhead[LE]{\ACM@linecount\sffamily
1755       \@acmArticle:\thepage\quad\textbullet\quad\shortauthors}%
1756     \fancyhead[LO]{\ACM@linecount}%
1757     \fancyhead[RO]{\sffamily
1758       \shorttitle\quad\textbullet\quad\@acmArticle:\thepage}%
1759     \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1760       \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
1761   \or % acmtog
1762     \fancyhead[LE]{\ACM@linecount\sffamily
1763       \@acmArticle:\thepage\quad\textbullet\quad\shortauthors}%
1764     \fancyhead[LO]{\ACM@linecount}%
1765     \fancyhead[RO]{\sffamily
1766       \shorttitle\quad\textbullet\quad\@acmArticle:\thepage}%
1767     \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1768       \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
1769   \else % Proceedings
1770     \fancyfoot[R]{\footnotesize\thepage}%
1771     \fancyhead[L]{\ACM@linecount}%
1772   \fi
1773 }
1774 \pagestyle{standardpagestyle}

\@folio@wd Folio blob width, height, offsets and max number
\@folio@ht
\@folio@voffset 1775 \newdimen\@folio@wd
\@folio@max 1776 \@folio@wd=\z@
1777 \newdimen\@folio@ht
1778 \@folio@ht=\z@
1779 \newdimen\@folio@voffset
1780 \@folio@voffset=\z@
1781 \def\@folio@max{1}

```

```

1782 \ifcase\ACM@format@nr
1783 \relax % manuscript
1784 \or % acmsmall
1785   \@folio@wd=45.75pt\relax
1786   \@folio@ht=1.25in\relax
1787   \@folio@voffset=.2in\relax
1788   \def\@folio@max{8}
1789 \or % acmlarge
1790   \@folio@wd=43.25pt\relax
1791   \@folio@ht=79pt\relax
1792   \@folio@voffset=.55in\relax
1793   \def\@folio@max{10}
1794 \fi

```

\@folioblob The macro to typeset the folio blob.

```

1795 \def\@folioblob{\@tempcnta=\@acmArticleSeq\relax
First, we calculate \@acmArticleSeq modulo \@folio@max
1796   \loop
1797     \ifnum\@tempcnta>\@folio@max\relax
1798       \advance\@tempcnta by - \@folio@max
1799   \repeat
1800   \advance\@tempcnta by -1\relax
1801   \@tempdima=\@folio@ht\relax
1802   \multiply\@tempdima by \the\@tempcnta\relax
1803   \advance\@tempdima by -\@folio@voffset\relax
1804   \begin{picture}(0,0)
1805     \makebox[\z@]{\raisebox{-\@tempdima}{%
1806       \rlap{%
1807         \raisebox{-0.45\@folio@ht}{\z@}{\z@}{%
1808           \rule{\@folio@wd}{\@folio@ht}}}%
1809       \parbox{\@folio@wd}{%
1810         \centering
1811         \textcolor{white}{\LARGE\bfseries\sffamily\@acmArticle}}}}
1812   \end{picture}}
1813

```

firstpagestyle The pagestyle for the first page only.

```

1814 \fancypagestyle{firstpagestyle}{%
1815   \fancyhf{}%
1816   \renewcommand{\headrulewidth}{\z@}%
1817   \renewcommand{\footrulewidth}{\z@}%
1818   \ifcase\ACM@format@nr
1819   \relax % manuscript
1820   \fancyhead[L]{\ACM@linecount}%
1821   \fancyfoot[R0,LE]{\small\thepage}%
1822   \fancyfoot[RE,LO]{\footnotesize Manuscript submitted to ACM}%
1823   \or % acmsmall
1824   \fancyfoot[R0,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1825     \@acmNumber, Article \@acmArticle. Publication date:

```

```

1826 \@acmPubDate.}%
1827 \fancyhead[LE]{\ACM@linecount\@folioblob}%
1828 \fancyhead[LO]{\ACM@linecount}%
1829 \fancyhead[RO]{\@folioblob}%
1830 \fancyheadoffset[RO,LE]{0.6\@folio@wd}%
1831 \or % acmlarge
1832 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1833 \@acmNumber, Article \@acmArticle. Publication date:
1834 \@acmPubDate.}%
1835 \fancyhead[RO]{\@folioblob}%
1836 \fancyhead[LE]{\ACM@linecount\@folioblob}%
1837 \fancyhead[LO]{\ACM@linecount}%
1838 \fancyheadoffset[RO,LE]{1.4\@folio@wd}%
1839 \or % acmtog
1840 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1841 \@acmNumber, Article \@acmArticle. Publication date:
1842 \@acmPubDate.}%
1843 \fancyhead[L]{\ACM@linecount}%
1844 \else % Conference proceedings
1845 \fancyhead[L]{\ACM@linecount}%
1846 \fancyfoot[R]{\footnotesize\thepage}%
1847 \fi
1848 }

```

### 3.14 Sectioning

Sectioning is different for different levels

```

1849 \renewcommand\section{\@startsection{section}{1}{\z@}%
1850 {- .75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1851 {.25\baselineskip}%
1852 {\@secfont}}
1853 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
1854 {- .75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1855 {.25\baselineskip}%
1856 {\@subsecfont}}
1857 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{10pt}%
1858 {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1859 {-3.5\p@}%
1860 {\@subsubsecfont\@adddotafter}}
1861 \renewcommand\paragraph{\@startsection{paragraph}{4}{\parindent}%
1862 {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1863 {-3.5\p@}%
1864 {\@parfont\@adddotafter}}
1865 \renewcommand\part{\@startsection{part}{9}{\z@}%
1866 {-10\p@ \@plus -4\p@ \@minus -2\p@}%
1867 {4\p@}%
1868 {\@parfont}}

```

Fonts for sections etc. are different for different formats. Also, some formats use the ugly period after section number (sigh):

```

1869 \def\@secfont{\sffamily\bfseries\raggedright\MakeUppercase}
1870 \def\@subsecfont{\sffamily\bfseries\raggedright}
1871 \def\@subsubsecfont{\sffamily\itshape}
1872 \def\@parfont{\itshape}
1873 \setcounter{secnumdepth}{3}
1874 \ifcase\ACM@format@nr
1875 \relax % manuscript
1876 \or % acmsmall
1877 \or % acmlarge
1878 \def\@secfont{\sffamily\large\raggedright\MakeUppercase}
1879 \def\@subsecfont{\sffamily\large\raggedright}
1880 \or % acmtog
1881 \def\@secfont{\sffamily\large\raggedright\MakeUppercase}
1882 \def\@subsecfont{\sffamily\large\raggedright}
1883 \or % sigconf
1884 \def\@secfont{\bfseries\Large\raggedright\MakeUppercase}
1885 \def\@subsecfont{\bfseries\Large\raggedright}
1886 \or % siggraph
1887 \def\@secfont{\bfseries\sffamily\Large\raggedright\MakeUppercase}
1888 \def\@subsecfont{\bfseries\sffamily\Large\raggedright}
1889 \or % sigplan
1890 \def\@secfont{\bfseries\Large\raggedright}
1891 \def\@subsecfont{\bfseries\raggedright}
1892 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{\z@}%
1893   {- .75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1894   {.25\baselineskip}%
1895   {\@subsubsecfont}}
1896 \def\@subsubsecfont{\bfseries\raggedright}
1897 \renewcommand\paragraph{\@startsection{paragraph}{4}{\z@}%
1898   {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1899   {-3.5\p@}%
1900   {\@parfont\@addspaceafter}}
1901 \def\@parfont{\bfseries\itshape}
1902 \renewcommand\subparagraph{\@startsection{subparagraph}{5}{\z@}%
1903   {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1904   {-3.5\p@}%
1905   {\@subparfont\@addspaceafter}}
1906 \def\@subparfont{\itshape}
1907 \or % sigchi
1908 \setcounter{secnumdepth}{1}
1909 \def\@secfont{\bfseries\sffamily\raggedright\MakeUppercase}
1910 \def\@subsecfont{\bfseries\sffamily\raggedright}
1911 \or % sigchi-a
1912 \setcounter{secnumdepth}{0}
1913 \def\@secfont{\bfseries\sffamily\raggedright\MakeUppercase}
1914 \def\@subsecfont{\bfseries\sffamily\raggedright}
1915 \fi

```

\@adddotafter Add punctuation after the command

```

1916 \def\@adddotafter#1{#1\@addpunct{.}}

```

\@addspaceafter Add space after the command  
 1917 \def\@addspaceafter#1{#1\@addpunct{\enspace}}

### 3.15 Theorems

acmplain The acmplain theorem style

```
1918 \newtheoremstyle{acmplain}%
1919 { .5\baselineskip \@plus.2\baselineskip
1920 \@minus.2\baselineskip}% space above
1921 { .5\baselineskip \@plus.2\baselineskip
1922 \@minus.2\baselineskip}% Space below
1923 {\itshape}% body font
1924 {\parindent}% indent amount
1925 {\scshape}% head font
1926 { .}% punctuation after head
1927 { .5em}% spacing after head
1928 {\thmname{#1}\thmnumber{ #2}\thmnote{ (#3)}}% head spec
```

acmdefinition The acmdefinition theorem style

```
1929 \newtheoremstyle{acmdefinition}%
1930 { .5\baselineskip \@plus.2\baselineskip
1931 \@minus.2\baselineskip}% space above
1932 { .5\baselineskip \@plus.2\baselineskip
1933 \@minus.2\baselineskip}% Space below
1934 {\normalfont}% body font
1935 {\parindent}% indent amount
1936 {\itshape}% head font
1937 { .}% punctuation after head
1938 { .5em}% spacing after head
1939 {\thmname{#1}\thmnumber{ #2}\thmnote{ \itshape(#3)}}% head spec
```

The definitions for theorems:

```
1940 \theoremstyle{acmplain}
1941 \newtheorem{theorem}{Theorem}[section]
1942 \newtheorem{conjecture}[theorem]{Conjecture}
1943 \newtheorem{proposition}[theorem]{Proposition}
1944 \newtheorem{lemma}[theorem]{Lemma}
1945 \newtheorem{corollary}[theorem]{Corollary}
1946 \theoremstyle{acmdefinition}
1947 \newtheorem{example}[theorem]{Example}
1948 \newtheorem{definition}[theorem]{Definition}
```

proof We want small caps proof name

```
1949 \renewenvironment{proof}[1][\proofname]{\par
1950 \pushQED{\qed}%
1951 \normalfont \topsep6\p@\@plus6\p@\relax
1952 \trivlist
1953 \item[\indent\hskip\labelsep
1954 \scshape
```



```

1955     #1\@addpunct{.}]\ignorespaces
1956 }{%
1957   \popQED\endtrivlist\endpefalse
1958 }

```

### 3.16 Conditional typesetting

We use the `comment` package for conditional typesetting:

```

1959 \if@ACM@screen
1960   \includecomment{screenonly}
1961   \excludecomment{printonly}
1962 \else
1963   \excludecomment{screenonly}
1964   \includecomment{printonly}
1965 \fi
1966 \if@ACM@anonymous
1967   \excludecomment{anonsuppress}
1968 \else
1969   \includecomment{anonsuppress}
1970 \fi

```

### 3.17 End of Class

```

1971 \normalsize\normalfont
1972 </class>

```

## References

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## Change History

v1.00	General: First released version . . . . .	18	General: Updated bibliography for siggraph . . . . .	18
v1.01	General: Changed hyperref colors in screen mode (closes <a href="https://github.com/borisveytsman/acmart/issues/1">https://github.com/borisveytsman/acmart/issues/1</a> ) . . . . .	18	v1.05	General: Added processing doi numbers for acmsiggraph and doi numbers for sigproc.bib . . . . .
	Defined ACM colors . . . . .	18		Patched \setcitestyle command; closes <a href="https://github.com/borisveytsman/acmart/issues/19">https://github.com/borisveytsman/acmart/issues/19</a> . . . . .
	Explicitly put draft option (closes <a href="https://github.com/borisveytsman/acmart/issues/4">https://github.com/borisveytsman/acmart/issues/4</a> ) . . . . .	20	v1.06	\@ACM@badge@skip: Added macro . . . . .
	Set headheight to 1pc for all formats (closes <a href="https://github.com/borisveytsman/acmart/issues/5">https://github.com/borisveytsman/acmart/issues/5</a> ) . . . . .	18		\@ACM@badge@width: Added macro . . . . .
v1.02	General: Added TOPS and TSC (closes <a href="https://github.com/borisveytsman/acmart/issues/12">https://github.com/borisveytsman/acmart/issues/12</a> ) . . . . .	18		\@ACM@title@width: Added macro . . . . .
	Documentation changes (closes <a href="https://github.com/borisveytsman/acmart/issues/13">https://github.com/borisveytsman/acmart/issues/13</a> ) . . . . .	18		\@mktitle@i: Added processing badges . . . . .
v1.03	\@formatdoi: Added macro . . . . .	44		Made generic . . . . .
	\if@ACM@authorversion: Added macro . . . . .	19		\@mktitle@ii: Now this macro is obsolete . . . . .
	\maketitle: Added special case of authorversion . . . . .	47		\@mktitle@iii: Added processing badges . . . . .
	General: Added anonsuppress environment . . . . .	18		Made more generic . . . . .
	Added authorversion option (closes <a href="https://github.com/borisveytsman/acmart/issues/9">https://github.com/borisveytsman/acmart/issues/9</a> ) . . . . .	18		\@mktitle@iv: Made more generic . . . . .
v1.04	\acmArticleSeq: Name change by Matthew Fluet . . . . .	39		\@printtopmatter: Added processing badges . . . . .
	\acmDOI: Name change by Matthew Fluet . . . . .	40		\@subtitlefont: Added macro . . . . .
	\acmISBN: Name change by Matthew Fluet . . . . .	39		\@titlefont: Added macro . . . . .
				\acmBadgeL: Added macro . . . . .
				\acmBadgeR: Added macro . . . . .
				\if@ACM@badge: Added macro . . . . .
			v1.07	\maketitle: Corrected a bug with abstract footnotes . . . . .
				Corrected a bug with permission and footnotes order . . . . .
			v1.08	General: SIGPLAN reformatting by Matthew Fluet . . . . .
				Typos corrected (Tobias Pape) . . . . .
			v1.09	General: Revert SIGPLAN caption rules . . . . .

## Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

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