The `amsbooka` package

American Mathematical Society
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Version 2.08, 2014/07/11

1   Introduction

This package is an add-on to the $\mathcal{A}_{\mathcal{M}}\mathcal{S}$-LATEX document classes for monographs. It provides the facility to include an author's name with a part or chapter title of a monograph, and automatically pass the author information on to the table of contents for presentation in a style compatible with the regular (series-specific) TOC style. It also provides facilities to add elements often associated with separately authored chapters, including a copyright notice, uunumbered footnotes, and a section-level bibliography.

This package may become part of the $\mathcal{A}_{\mathcal{M}}\mathcal{S}$-LATEX collection of document classes and related packages.

Standard file identification.

```
1 \NeedsTeXFormat{LaTeX2e}% LaTeX 2.09 can't be used (nor non-LaTeX)
2 [1995/06/01]% LaTeX date must be June 1995 or later
3 \ProvidesPackage{amsbooka}[2014/07/11 v2.08 monograph part/chapter authors]
```

2   User instructions

Getting started: The front matter of the book must include (at least) a `\title` and `\maketitle`. If these are absent, an unintelligible error message will result. This is caused by the redefinition of the `\author` command, which is ordinarily expected to occur only in the book's front matter.

2.1   Chapter and part headings

A part or chapter with no associated author is input in the usual way:

`\part{`⟨*full title*⟩`}`
`\chapter[`⟨*short title*⟩`]{`⟨*full title*⟩`}`

The part or chapter title will be set in the regular style for the series.

If an author is to be associated with a chapter, then the short title *must* be provided, and the author is included within the full title, thus:

`\chapter[`⟨*short title*⟩`]{`⟨*full title*⟩ `\author{`⟨*author name*⟩`}}`

This works for both `\chapter` and `\chapter*`. Similarly, a part title with an associated author must include the author as follows:

`\part{`⟨*full title*⟩ `\author{`⟨*author name*⟩`}}`

No short title is required for a part title with author.

The author name will be set following the title and also included in the table of contents, both in the appropriate style for the series.

When an author is specified for a chapter, the left-hand running head will be the author name; the right-hand running head will be the chapter title, taken from the short title. For a chapter with no specified author, the running heads will be the same as for an "ordinary" monograph: chapter title on the left and section heading on the right, except that, if the chapter has no sections, the chapter title will also appear on the right.

By default, "authored" chapters will be numbered, but chapter numbers will be omitted from the running heads. (Most volumes encountered so far in this style are essentially collections.) Chapter numbers can be restored to the running heads by using the documentclass option [rhchapnum]. In the present version of amsbooka this is an all-or-nothing proposition, but this decision may be reconsidered if an example emerges in which there is justification for including chapter numbers in some running heads but not in others.

Similarly, the "standard" monograph running heads (chapter on the left, section on the right) can be forced for all authored chapters by specifying the documentclass option [rhchapsec]. With this option, chapter numbers will not be suppressed. Again, this is an all-or-nothing choice.

2.2   Elements at the bottom of the first page

If information such as a previous publication or an alternate source is noted, this should appear on the first page of the chapter as an unnumbered footnote. Enter this immediately after the \chapter title, using this command:

\barefootnote{⟨footnote text⟩}

If a separate copyright notice is required for a chapter, enter it as follows:

\copyrightinfo{⟨year⟩}{⟨copyright holder⟩}

If this command is not input for a chapter, no notice will appear.

2.3   Bibliography within a chapter

The bibliography of a monograph usually appears as a separate chapter. However, for collections addressed by the present package, each individual chapter may have its own reference list, which should be treated as a section.

If the chapter bibliography has been prepared for amsrefs, specify bibsection to obtain the proper format. (See the amsrefs documentation for details.)

If the chapter bibliography has been prepared using BIBTEX, substitute

\begin{inchapterbibliography}
...
\end{inchapterbibliography}

for the usual thebibliography environment. The actual contents of the bibliography should be included within the chapter file, not read in from a separate .bbl file. If the heading of this section needs to be changed,

\renewcommand{\bibname}{...}

3 Implementation

This package is meant for use with all AMS monograph series. Two series, GSM and STML, have special requirements, so provide matching strings that can be used to identify them. Other series may be added to this list, so also provide a switch that can be used to identify them collectively.

```
 4 \def\@gsm{gsm-l}
 5 \def\@stml{stml-l}
 6 \newif\if@ruledchapterhead
 7 \@ruledchapterheadfalse
 8 \ifx\@classname\@gsm \@ruledchapterheadtrue
 9   \else\ifx\@classname\@stml \@ruledchapterheadtrue
10   \fi
11 \fi
```

Some ramifications with running heads are best addressed with defaults that can be overridden by options.

First option: force "standard" (chapter/section) running heads.

```
12 \newif\if@rhchapnum
13 \@rhchapnumfalse
14 \DeclareOption{rhchapnum}{\@rhchapnumtrue}
```

Next option: force "standard" (chapter/section) running heads. This also turns on chapter numbers in the running heads.

```
15 \newif\if@rhchapsec
16 \@rhchapsecfalse
17 \DeclareOption{rhchapsec}{\@rhchapsectrue \@rhchapnumtrue}
```

```
18 \ProcessOptions\relax
```

3.1 Chapter headings

@schaptera In order to associate an author name with an unnumbered chapter, we need
@schapterb to redefine \@schapter to accept a bracketed optional version for the running head. The original version, without optional text, is still required for the bibliography and index as well as for other unauthored chapters. Use the original \@schapter for this by giving it another name, and check again for the presence of a bracketed option.

```
19 \let\@schapterb\@schapter
20 \def\@schapter{\secdef\@schaptera\@schapterb}
21 \def\@schaptera[#1]#2{\typeout{#1}%
22   \let\@secnumber\@empty
23   \def\@toclevel{0}%
24   \ifx\chaptername\appendixname \@tocwriteb\tocappendix{chapter}{#2}%
25   \else \@tocwriteb\tocchapter{chapter}{#2}\fi
26   \chaptermark{#1}%
27   \addtocontents{lof}{\protect\addvspace{10\p@}}%
28   \addtocontents{lot}{\protect\addvspace{10\p@}}%
29   \@makeschapterhead{#2}\@afterheading
30 }
```

@makechapterhead
@makeschapterhead

Redefine the commands `\@makechapterhead` and `\@makeschapterhead` from the regular monograph document classes, handling special cases as necessary.

```
31 \def\@makechapterhead#1{%
32   \ifx\@classname\@gsm \@makegsmchapterhead{#1}%
33   \else \ifx\@classname\@stml \@makestmlchapterhead{#1}%
34   \else \@makeplainchapterhead{#1}%
35   \fi \fi
36 }
37 \newif\if@schapter \@schapterfalse
38 \def\@makeschapterhead#1{%
39   \@schaptertrue
40   \ifx\@classname\@gsm \@makegsmchapterhead{#1}%
41   \else \ifx\@classname\@stml \@makestmlchapterhead{#1}%
42   \else \@makeplainschapterhead{#1}%
43   \fi \fi
44 }
```

@makeplainchapterhead
@makeschapterhead

The "plain" chapter head style is used for nearly all AMS monograph series. The title is set in the usual style, with the author name centered below in small caps.

The author name is set up to be the left-hand running head, as it would be for a journal or proceedings article. This will be effected only for chapters with an `\author`. It can also be suppressed with the [rhchapsec] option.

If a copyright notice is included, suppress it for the next chapter.

```
45 \def\@makeplainchapterhead#1{%
46   \global\topskip 7.5pc\relax
47   \@setcopyright
48   \let\copyrightyear\@empty
49   \begingroup
50   \def\title{}%
51   \def\author##1{%
52     \if@rhchapsec
53     \else \markleft{\MakeUppercase{##1}}%
54     \fi
55     \vskip1pc\fontsize{\@xiipt}{14}\mdseries\textsc{##1}}%
56   \fontsize{\@xivpt}{18}\bfseries\centering
57     \ifnum\c@secnumdepth>\m@ne
58       \leavevmode \hskip-\leftskip
59       \rlap{\vbox to\z@{\vss
60          \centerline{\normalsize\mdseries
61              \MakeUppercase{\chaptername}\enspace\thechapter}
62          \vskip 3pc}}\hskip\leftskip
63     \fi
64     #1\par \endgroup
65   \skip@34\p@ \advance\skip@-\normalbaselineskip
66   \vskip\skip@
67 }
68 \def\@makeschapterhead#1{%
69   \global\topskip 7.5pc\relax
```

```
70   \@setcopyright
71   \let\copyrightyear\@empty
72   \begingroup
73   \def\title{}%
74   \def\author##1{%
75     \if@rhchapsec
76     \else \markleft{\MakeUppercase{##1}}%
77     \fi
78     \vskip1pc\fontsize{\@xiipt}{14}\mdseries\textsc{##1}}%
79   \fontsize{\@xivpt}{18}\bfseries\centering
80   #1\par \endgroup
81   \skip@34\p@ \advance\skip@-\normalbaselineskip
82   \vskip\skip@
83 }
```

@makeruledchapterhead
makeruledschapterhead

GSM and STML require a rule at the top of the page and a smaller rule above the page number at the bottom. Other specs are publication-specific.

```
84 \def\@makeruledchapterhead#1{%
85   \global\topskip\normaltopskip
86   \begingroup
87   \def\author##1{%
88     \if@rhchapsec
89     \else \markleft{##1}%
90     \fi
91     \\ \hfil \\ \@chapauthorstyle ##1}%
92   \vbox to\topskip{%
93     \chapter@number
94     \vss
95   }\penalty\@M
96   \@chapheadstyle \raggedright
97   \noindent #1\par \endgroup
98   \if@index
99     \@indexstyle
100  \else
101    \@dropfolio
102    \@noindexstyle
103  \fi
104  \@afterheading
105 }
106 \def\@makeruledschapterhead#1{%
107  \global\topskip\normaltopskip
108  \begingroup
109  \def\author##1{%
110    \if@rhchapsec
111    \else \markleft{##1}%
112    \fi
113    \\ \hfil \\ \@chapauthorstyle ##1}%
114  \@chapheadstyle \raggedright
115  \noindent #1\par \endgroup
116  \if@index
```

```
117     \@indexstyle
118   \else
119     \@dropfolio
120     \@noindexstyle
121   \fi
122   \@afterheading
123 }
```

@makegsmchapterhead   The style for GSM requires a rule at the top of the page, with the chapter title
flush left, bold, and the author information below the title also flush left and
bold but in a smaller size.

```
124 \def\@makegsmchapterhead#1{%
125   \def\@chapheadstyle{\Huge\bfseries \hsize24pc
126     \top@space{11pc}}%
127   \def\@chapauthorstyle{\LARGE\bfseries}%
128   \def\@indexstyle{%
129     \ifx\@empty\indexintro
130       \bb@space{7.5pc}%
131     \else
132       \vspace{3pc}%
133       \begingroup \small
134         \parbox[t]{27pc}{\leftskip3pc\normalfont\indexintro\par}%
135       \endgroup
136       \bb@space{3pc}%
137     \fi
138     }%
139   \def\@noindexstyle{\bb@space{7.5pc}}%
140   \if@schapter
141     \@makeruledschapterhead{#1}%
142   \else
143     \@makeruledchapterhead{#1}%
144   \fi
145 }
```

@makestmlchapterhead   The style for STML is similar to that for GSM, except for the smaller page size
and the author information set in lightface in the LARGE size.

```
146 \def\@makestmlchapterhead#1{%
147   \def\@chapheadstyle{\fontsize\@xxpt{22}\selectfont\bfseries\hsize 21pc
148     \top@par@space{9pc}}%
149   \def\@chapauthorstyle{\LARGE\mdseries}%
150   \def\@indexstyle{%
151     \ifx\@empty\indexintro
152       \bb@par@space{6.5pc}%
153     \else
154       \vspace{2.5pc}%
155       \begingroup \small
156         \parbox[t]{22.5pc}{\leftskip2.5pc\normalfont\indexintro\par}%
157       \endgroup
158       \bb@par@space{2.5pc}%
```

```
159      \fi
160      }%
161    \def\@noindexstyle{\bb@par@space{6.5pc}}%
162    \if@schapter
163      \@makeruledschapterhead{#1}%
164    \else
165      \@makeruledchapterhead{#1}%
166    \fi
167 }
```

3.2 Running heads

chapterrunhead Unless overridden by the [] option, omit chapter numbers from the right-hand running head with chapter title. (Explicit line breaks with \\ are converted to spaces.)

```
168 \if@rhchapnum
169 \else
170   \def\chapterrunhead#1#2#3{%
171     \def\@tempa{#3}%
172     \begingroup \def\\{ \ignorespaces}%
173       \uppercasenonmath\@tempa\@tempa
174     \endgroup
175   }
176 \fi
```

3.3 Part headings

@plainpart The "plain" part head style is used for nearly all AMS monograph series. The title is set in the usual style, with the author name centered below in italic.

```
177 \def\partauthor{%
178   \def\author##1{\newline\phantom{Part 1.\enspace}{\mdseries\scshape##1}}}
179 \def\@part[#1]#2{%
180   \ifnum \c@secnumdepth >-2\relax \refstepcounter{part}%
181     \addcontentsline{toc}{part}{\partname\ \thepart.%
182         \protect\partauthor\protect\enspace\protect\noindent#1}%
183   \else
184     \addcontentsline{toc}{part}{#1}\fi
185   \begingroup
186   \def\author##1{\\ \hfil \\ \fontsize{\@xivpt}{20}\mdseries\itshape ##1}%
187   \centering
188   \ifnum \c@secnumdepth >-2\relax
189     {\fontsize{\@xviipt}{22}\bfseries
190       \partname\ \thepart} \vskip 20\p@ \fi
191   \fontsize{\@xxpt}{25}\bfseries
192     #1\vfil\vfil\endgroup \newpage\thispagestyle{empty}}
193 \def\@spart#1{\addcontentsline{toc}{part}%
194   {\protect\partauthor\protect\noindent#1}%
195   \begingroup
196   \def\author##1{\\ \hfil \\ \fontsize{\@xivpt}{20}\mdseries\itshape ##1}%
197   \centering
```

```
198   \fontsize{\@xxpt}{25}\bfseries
199     #1\vfil\vfil\endgroup \newpage\thispagestyle{empty}}
```

3.4   Table of Contents

Allow more space for the page number than provided in amsbook; that is only 1.6em, and results in unpleasantly long text.

```
200 \setbox\z@\hbox{\kern1.5pc 999}
201 \renewcommand{\@pnumwidth}{\wd\z@}
```

@tocline   Replace the \@tocline command to include the \author information. This will be set in small caps on the line following the chapter title, with the same indentation as the title.

```
202 \def\@tocline#1#2#3#4#5#6#7{\relax
203   \ifnum #1>\c@tocdepth % then omit
204   \else
205     \def\author##1{\newline\textsc{##1}}%
206     \par \addpenalty\@secpenalty\addvspace{#2}%
207     \begingroup \hyphenpenalty\@M
208     \@ifempty{#4}{%
209       \@tempdima\csname r@tocindent\number#1\endcsname\relax
210     }{%
211       \@tempdima#4\relax
212     }%
213     \parindent\z@ \leftskip#3\relax \advance\leftskip\@tempdima\relax
214     \rightskip\@pnumwidth plus.2\hsize \parfillskip-\@pnumwidth
215     #5\leavevmode\hskip-\@tempdima #6\nobreak\relax
216     \hfil\hbox to\@pnumwidth{\@tocpagenum{#7}}\par
217     \nobreak
218     \endgroup
219   \fi
220 }
```

3.5   Other features

Copyright notice

A copyright notice is sometimes wanted on separately authored chapters of a "composite" monograph or volume of collected works. Provide the ability to add this feature if required, using the same command, \copyrightinfo, used for journal and proceedings articles. \copyrightinfo is present in amsbook, so it suffices to set an appropriate default to suppress it unless it is requested explicitly.

```
221 \let\copyrightyear\@empty
```

For now, don't allow a copyright notice for GSM or STML or other books with a similar design. The need is unlikely, but the more important reason is that the style needs rethinking if such a notice is to be included.

```
222 \if@ruledchapterhead \def\copyrightinfo#1#2{}\fi
```

barefootnote **"Bare" footnotes**

Unnumbered footnotes (such as those that appear on the first page of a journal or proceedings article) are needed to provide information regarding earlier publication and the like.

```
223 \newcommand{\barefootnote}[1]{{%
224   \let\@makefnmark\relax \let\@thefnmark\relax
225   \@footnotetext{#1}}}
```

inchapterbibliography **Chapter-specific bibliography**

Separately authored chapters often have individual bibliographies, which should be presented as sections, not chapters. For now, disable the mark for the section header (copying the code from the initial value in `amsbook`); it should not appear as the right-hand running head if the author/chapter title headers are in effect. Still to be determined is whether the section title "Bibliography" should appear in the running head if no author is specified and the "standard" running heads are used.

```
226 \newenvironment{inchapterbibliography}[1]{%
227   \let\sectionmark\@gobble
228   \@xp\section\@xp*\@xp{\bibname}%
229   \normalfont\footnotesize\labelsep .5em\relax
230   \renewcommand\theenumiv{\arabic{enumiv}}\let\p@enumiv\@empty
231   \list{\@biblabel{\theenumiv}}{\settowidth\labelwidth{\@biblabel{#1}}%
232     \leftmargin\labelwidth \advance\leftmargin\labelsep
233     \usecounter{enumiv}}%
234   \sloppy \clubpenalty\@M \widowpenalty\clubpenalty
235   \sfcode`\.=\@m
236 }{%
237   \def\@noitemerr{\@latex@warning{Empty `inchapterbibliography' environment}}%
238   \endlist
239 }
```

3.6   Boilerplate

The usual `\endinput` to ensure that random garbage at the end of the file doesn't get copied by `docstrip`.

```
240 \endinput
```