

The nputhesis class*

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1 Introduction

2 Usage

3 Implementation

使用布尔变量实现文档的选项设置

```
1 \newif\if@npu@phd
2 \newif\if@npu@blankinfo
3 \def\set@npu@phd{\@npu@phdtrue}
4 \def\set@npu@ma{\@npu@phdfalse}
```

使用 xkeyval 声明文档选项

```
5 \RequirePackage{xkeyval}
```

声明选项 blankinfo, 用于控制是否现实空白页标识信息.

```
6 \DeclareOptionX{blankinfo}[false]{\csname @npu@blankinfo#1\endcsname}
```

声明选项 thesistype, 可选参数为 phd 和 ma, 用于选择文档类型: 博士论文还是硕士论文.

```
7 \DeclareOptionX{thesistype}[phd]{\csname set@npu@#1\endcsname}
```

声明选项 phd 和 ma, 要废齐的选项, 被 thesistype 代替, 请使用 thesistype.

```
8 \DeclareOptionX{phd}{\@npu@phdtrue}
9 \DeclareOptionX{ma}{\@npu@phdfalse}
```

*This document corresponds to nputhesis v0.6.2, dated 2020/02/18.

该文类基于 book 类实现, 加载 book 文类.

```
10 \DeclareOptionX*{\PassOptionsToClass{\CurrentOption}{book}}
11 \ExecuteOptionsX{thesistype=phd}
12 \ProcessOptionsX \relax
13 \LoadClass{book}
```

加载需要的宏包

```
14 \RequirePackage{geometry}
15 \RequirePackage{xcolor}
16 \RequirePackage{fancyhdr}
17 \RequirePackage{titletoc}
18 \RequirePackage{caption}
19 \RequirePackage{ulem}
20 \RequirePackage{amsthm}
21 \RequirePackage{amsmath}
22 \RequirePackage{amsfonts}
23 \RequirePackage{setspace}
24 \RequirePackage{longtable}
25 \RequirePackage{booktabs}
26 \RequirePackage{tabularx}
27 \RequirePackage{multirow}
28 \RequirePackage{graphicx}
29 \RequirePackage[heading=true,zihao=-4]{ctex}
30 \RequirePackage{ifxetex}
31 \ifxetex
32   \setmainfont{Times New Roman}
33 \fi
```

设置页面版式格式

```
34 \geometry{paperwidth=210mm,paperheight=297mm,%
35   left=2.5cm,right=2.5cm,top=2.54cm,bottom=2.54cm}
36 \topmargin=-10.4mm
37 \headheight=17pt
38 \footskip=8mm
39 \headsep=5mm
```

设置默认章节标题格式

```
40 \ifx\ctexset\undefined
41   \CTEXsetup[ % name={,}, number={\arabic{chapter}},% use default value
42     beforeskip={0pt}, afterskip={20pt}]{chapter}
43   \CTEXsetup[nameformat={\heiti\zihao{3}\bf}]{chapter}
44   \CTEXsetup[titleformat={\heiti\zihao{3}}]{chapter}
45   \CTEXsetup[format={\heiti\zihao{4}}]{section}
46   \CTEXsetup[format={\heiti\zihao{-4}}]{subsection}
47 \else
48   \ctexset{
49     contentsname = {\npu@contents}
50   }
51   % title format of chapter
52   \ctexset{
53     % chapter/name={,}, % use default value in ctex
```

```

54 % chapter/number=\arabic{chapter}, % use default value in ctex
55 chapter/beforeskip={0pt},
56 chapter/afterskip={20pt},
57 chapter/format={\heiti\zihao{3}\centering}
58 }
59 % title format of section
60 \ctexset{
61   section/name={,},
62   % section/beforeskip={2ex plus .5ex minus .1ex},
63   % section/afterskip={1ex plus .1ex},
64   section/format={\heiti\zihao{4}}
65 }
66 % title format of subsection
67 \ctexset{
68   subsection/name={,},
69   % subsection/beforeskip={2ex plus .5ex minus .1ex},
70   % subsection/afterskip={1ex plus .1ex},
71   subsection/format={\heiti\zihao{-4}}
72 }
73 \ctexset{
74   subsubsection/name={,},
75   % subsubsection/beforeskip={1ex plus .3ex minus .1ex},
76   % subsubsection/afterskip={.5ex plus .1ex},
77   subsubsection/format={\heiti\zihao{-4}}
78 }
79 \ctexset{
80   paragraph/name={,},
81   % paragraph/beforeskip={1ex plus .3ex minus .1ex},
82   % paragraph/afterskip={.5ex plus .1ex},
83   paragraph/format={\heiti\zihao{-4}}
84 }
85 \ctexset{
86   subparagraph/name={,},
87   % subparagraph/beforeskip={1ex plus .3ex minus .1ex},
88   % subparagraph/afterskip={.5ex plus .1ex},
89   subparagraph/format={\heiti\zihao{-4}}
90 }
91 \fi

```

目录字体设置

```

92 \def\@contentfont{\songti\zihao{-4}}
93 \titlecontents{chapter}[0pt]{\@contentfont}
94   {\thecontentslabel\hspace{.5em}}{\}
95   {\hspace{.5em}\titlerule*{.}\contentspage}
96 \titlecontents{section}[15pt]{\@contentfont}
97   {\thecontentslabel\quad}{\}
98   {\hspace{.5em}\titlerule*{.}\contentspage}
99 \titlecontents{subsection}[30pt]{\@contentfont}
100   {\thecontentslabel\quad}{\}
101   {\hspace{.5em}\titlerule*{.}\contentspage}

```

版面标题

```
102 \pagestyle{fancy}
103 % \renewcommand\chaptermark[1]{\markboth{%
104 %     \ifmainmatter%
105 %         %\ifnum\arabic{chapter}>0%
106 %         \arabic{chapter}\quad%
107 %         %\fi%
108 %     \fi#1}{}}
109 \fancyhf{}
110 \fancyhead[EC]{\songti\zihao{-5}\npu@rightmark}
111 \fancyhead[OC]{\songti\zihao{-5}\leftmark}
112 \fancyfoot[C]{\songti\zihao{5}\thepage}
113 \renewcommand{\headrule}{%
114     \hrule width\headwidth height2.8pt \vspace{1pt}%
115     \hrule width\headwidth height0.8pt}
116 \fancypagestyle{plain}{\thispagestyle{fancy}}
117 \newcommand{\clearpagestyle}{\clearpage{\pagestyle{empty}\cleardoublepage}}
```

定义变量, 用于存储包括论文题目, 作者, 导师等信息.

```
118 \def\title{\@ifnextchar{\@title{\@title[]}}
119 \def\author{\@ifnextchar{\@author{\@author[]}}
120 \def\major{\@ifnextchar{\@major{\@major[]}}
121 \def\supervisor{\@ifnextchar{\@supervisor{\@supervisor[]}}
122 \def\applydate{\@ifnextchar{\@applydate{\@applydate[]}}
123
124 \def\@title[#1]#2{\def\@title@en{#1}\def\@title{#2}}
125 \def\@author[#1]#2{\def\@author@en{#1}\def\@author{#2}}
126 \def\@major[#1]#2{\def\@major@en{#1}\def\@major{#2}}
127 \def\@supervisor[#1]#2{\def\@supervisor@en{#1}\def\@supervisor{#2}}
128 \def\@applydate[#1]#2{\def\@applydate@en{#1}\def\@applydate{#2}}
129 \def\@title{}\def\@title@en{}
130 \def\@author{}\def\@author@en{}
131 \def\@major{}\def\@major@en{}
132 \def\@supervisor{}\def\@supervisor@en{}
133 \def\@applydate{}\def\@applydate@en{}
134 \def\npu@empty{}
135
136 \def\schoolno#1{\def\@schoolno{#1}}\def\@schoolno{}
137 \def\classno#1{\def\@classno{#1}}\def\@classno{}
138 \def\secretlevel#1{\def\@secretlevel{#1}}\def\@secretlevel{}
139 \def\authorno#1{\def\@authorno{#1}}\def\@authorno{}
140 \def\support#1{\def\@support{#1}}\def\@support{}
141
142 \if@npu@phd
143     \def\npu@degreename@en{Doctor}
144 \else
145     \def\npu@degreename@en{Master}
146 \fi
```

设置字体和行距

```

147 % \renewcommand{\normalsize}{\zihao{-4}}
148 \linespread{1.25}

定义外封面

149 \def\makeoutercover{
150   \begin{titlepage}
151     \bfseries
152     \linespread{1.25}
153     \begin{center}
154       \hfill% default \bf font
155       \heiti\zihao{5}
156       \newlength{\max@length}
157       \settowidth{\max@length}{\npu@schoolno\npu@comma 2000000000}
158       \newlength{\name@length}
159       \settowidth{\name@length}{\npu@schoolno}
160       \begin{minipage}{\max@length}
161         \vskip.5cm
162         \renewcommand\arraystretch{1.2}
163         \begin{tabular}{|c|c|}\hline
164           \makebox[\name@length][s]{\npu@schoolno} & \@schoolno & \hline
165           \makebox[\name@length][s]{\npu@classno} & \@classno & \hline
166           \makebox[\name@length][s]{\npu@secretlevel}& \@secretlevel & \hline
167           \makebox[\name@length][s]{\npu@authorno} & \@authorno & \hline
168         \end{tabular}
169       \end{minipage}
170       \par\vspace{9cm}
171       \songti\zihao{2}
172       \begin{minipage}[t]{2cm}
173         \hfill\npu@title\\
174       \end{minipage}
175       %\hbox to 2.5cm{\hfill \npu@title}
176       \setbox123=\hbox{
177         \begin{minipage}[t]{12cm}
178           \begin{center}
179             \heiti\@title
180           \end{center}
181         \end{minipage} }
182       \setbox124=\hbox{
183         \begin{minipage}[t]{12cm}
184           \begin{center}
185             \uline{\hfill\quad\hfill}\\
186             \uline{\hfill\quad\hfill}\\
187           \end{center}
188         \end{minipage} }
189       \hskip-0.5cm
190       \copy123\kern-\wd123\box124
191       \zihao{3}
192       \par\vspace{2.5\baselineskip}
193       \begin{minipage}{5cm}
194         {\kaishu\npu@author} \uline{\hfill\@author\hfill}

```

```

195 \end{minipage}
196 \par\vspace{2.5\baselineskip}
197 \settowidth{\name@length}{\npu@applydate}
198 \begin{minipage}{12.5cm}
199 \noindent
200 \makebox[\name@length][s]{\npu@major}%
201 {\uline{\hfill{\@major}\hfill}} \par
202 \vspace{0.5\baselineskip}
203 \makebox[\name@length][s]{\npu@supervisor}%
204 {\uline{\hfill{\@supervisor}\hfill}} \par
205 \vspace{0.5\baselineskip}
206 \makebox[\name@length][s]{\npu@applydate}%
207 {\uline{\hfill{\@applydate}\hfill}} \par
208 \end{minipage}
209 \vspace{2\baselineskip}
210 \end{center}
211 \end{titlepage}
212 \clearpagestyle%
213 }

```

定义内封面

```

214 \def\makeinnercover@zh{
215 \begin{titlepage}
216 \linespread{1.25}
217 \vspace*{2cm}
218 \begin{center}
219 \settowidth{\name@length}{\zihao{3}\npu@schoolname}
220 \divide\name@length by 12
221 \multiply\name@length by 17
222 \makebox[\name@length][s]{\zihao{3}\npu@schoolname}
223 \vskip5mm
224 \settowidth{\name@length}{\zihao{1}\npu@degree}
225 \divide\name@length by 12
226 \multiply\name@length by 17
227 \makebox[\name@length][s]{\zihao{1}\npu@degree}
228 \vskip5mm
229 \centerline{\zihao{4}\npu@degreeclass}
230 \vskip5cm
231 \zihao{2}
232 \begin{minipage}[t]{2.5cm}
233 \hfil\npu@title\npu@comma
234 \end{minipage}
235 \setbox123=\hbox{
236 \begin{minipage}[t]{11cm}
237 \begin{center}
238 \@title
239 \end{center}
240 \end{minipage}}
241 \setbox124=\hbox{
242 \begin{minipage}[t]{11cm}

```

```

243         \begin{center}
244             \uline{\hfill\quad\hfill}\\
245             \uline{\hfill\quad\hfill}\\
246         \end{center}
247     \end{minipage}}
248     \hskip-1cm
249     \copy123\kern-\wd123\box124
250     \par\vspace{4cm}
251     \zihao{3}
252     \settowidth{\name@length}{\npu@major}
253     \begin{minipage}{8cm}
254         \noindent
255         \makebox[\name@length][s]{\npu@author}\npu@comma%
256         \uline{\hfill\@author\hfill} \par
257         \vspace{0.25\baselineskip}
258         \makebox[\name@length][s]{\npu@major}\npu@comma%
259         \uline{\hfill\@major\hfill} \par
260         \vspace{0.25\baselineskip}
261         \makebox[\name@length][s]{\npu@supervisor}\npu@comma%
262         \uline{\hfill\@supervisor\hfill}\par
263         \vspace{1\baselineskip}
264     \end{minipage}
265     \vspace{2\baselineskip}
266     \par\makebox[30mm]{\@applydate}\hfill
267 \end{center}
268 \end{titlepage}
269 \clearpagestyle
270 }

```

定义英文封面

```

271 \def\makeinnercover@en{
272     \begin{titlepage}
273         \linespread{1.25}
274         \vspace*{1.5cm}
275         \zihao{3}
276         \begin{center}
277             {\bf
278                 %\Large
279                 \@title@en \\
280                 \vspace{3\baselineskip}
281                 \zihao{-3}
282                 By\\
283                 \ifx\@author@en\npu@empty\quad\else\@author@en\fi\\
284                 \vspace{1\baselineskip}
285                 Under the Supervision of Professor\\
286                 \ifx\@supervisor@en\npu@empty\quad\else\@supervisor@en\fi\\
287                 %\Large
288                 \vspace{4\baselineskip}
289                 A Dissertation Submitted to\\
290                 Northwestern Polytechnical University\\

```

```

291 \vspace{1\baselineskip}
292 In Partial Fulfillment of the Requirement\\
293 for the Degree of\\
294 \npu@degreename@en\ of \@major@en\\
295 \vspace{4\baselineskip}
296 Xi'an P. R. China\\
297 \@applydate@en
298 \end{center}
299 \end{titlepage}
300 \clearpagestyle
301 }

```

整合以上封面为一个命令 makecover

```

302 \def\makecover{\makeoutercover\makeinnercover@zh\makeinnercover@en}

```

正文之前使用罗马数字编号

```

303 \let\npu@frontmatter\frontmatter
304 \def\frontmatter{\npu@frontmatter\pagenumbering{Roman}}

```

重定义 cleardoublepage, 用于实现 blankinfo 选项的功能.

```

305 \def\cleardoublepage{\clearpage\if@twoside \ifodd\c@page\else
306 \hbox{}
307 \vspace*{\fill}
308 \begin{center}\Large
309 \if@npu@blankinfo
310 \textcolor{gray!60}{This Page Intentionally Left Blank!}
311 \fi
312 \end{center}
313 \vspace{\fill}
314 \thispagestyle{empty}
315 \newpage
316 \if@twocolumn\hbox{}\newpage\fi\fi\fi}

```

定义中英文摘要环境

```

317 \newenvironment{abstract}{%
318 \chapter{\npu@abstract}%\addcontentsline{toc}{chapter}{\npu@abstract}%
319 \newenvironment{keywords}{%
320 \vspace{2\baselineskip}\par\textbf{\npu@keywords\npu@comma}}{}
321 }{\vfill\zihao{5}\@support}
322
323 \newenvironment{Abstract}{%
324 \chapter{\npu@Abstract}%\addcontentsline{toc}{chapter}{\npu@Abstract}%
325 \newenvironment{Keywords}{%
326 \vspace{2\baselineskip}\par\textbf{\npu@Keywords\npu@comma}}{}{}

```

图表标题设置

```

327 \DeclareCaptionFont{song}{\songti\zihao{5}} % command defined in package caption
328 \captionsetup[labelsep=quad, font=song]
329 \captionsetup[figure]{aboveskip=10pt, belowskip=10pt}
330 \captionsetup[table]{aboveskip=10pt, belowskip=10pt}
331 \renewcommand\thetable{\arabic{chapter}-\arabic{table}}
332 \renewcommand\thefigure{\arabic{chapter}-\arabic{figure}}

```



```

333 \renewcommand\theequation{\arabic{chapter}-\arabic{equation}}
    定义表格和列表环境
334 \let\oldtabular\tabular
335 \let\endoldtabular\endtabular
336 \renewenvironment{tabular}{\zihao{5}\oldtabular}{\endoldtabular}
337
338 % define nputabu environment which will stretch to textwidth
339 \newcolumntype{L}{>\raggedright\arraybackslash}X}
340 \newcolumntype{R}{>\raggedleft\arraybackslash}X}
341 \newcolumntype{C}{>\centering\arraybackslash}X}
342 \newenvironment{nputabu}[1][\zihao{5}]{#1\tabularx{\textwidth}}{\endtabularx}
343
344 \newenvironment{npulist}{%
345 \begingroup\renewcommand{\labelenumi}{[\theenumi].}\enumerate}%
346 {\endenumerate\endgroup}
    附录自动以英文字母编号
347 \let\npu@chapter\chapter
348 \def\npu@star@chapter#1{\npu@chapter{#1}}
349 \def\chapter{\secdef\npu@chapter\npu@star@chapter}
350 \newcounter{npu@c@appendix}
351 \setcounter{npu@c@appendix}{0}
352 \def\Appendix{\addtocounter{npu@c@appendix}{1}\chapter{\npu@appendix\Alph{npu@c@appendix}}}
    致谢章节
353 \def\Thanks{\chapter{\npu@thanks}}
    参加科研工作章节, 设置标题内容
354 \newcommand\Work{\chapter{\npu@work}}
355 \newcommand\papersection{\section*{\npu@work@paper}}
356 \newcommand\researchsection{\section*{\npu@work@research}}
    声明页
357 \def\statement{
358 \begin{titlepage}
359 \linespread{1.5}
360 \parskip=7pt
361 \vspace*{0pt}
362 \songti\zihao{4}
363 \centerline{\bf \npu@schoolname}
364 \centerline{\bf \npu@p@statement}
365 \songti\zihao{5}
366 \npu@longp@statement\par
367 \npu@a@signature\npu@comma\underline{\qqquad\qqquad\qqquad} \hfill
368 \npu@s@signature\npu@comma\underline{\qqquad\qqquad\qqquad} \par
369 \hskip 3cm \npu@ymd \hfill\hskip 3cm \npu@ymd
370 \vspace*{30pt}
371 \hbox to \hsize{\leaders\hbox to 1em{\hss--\hss}\hfill}
372
373 \vspace*{50pt}
374 \songti\zihao{4}

```

```

375 \centerline{\bf \npu@schoolname}
376 \centerline{\bf \npu@c@statement}
377 \songti\zihao{5}
378 \npu@longc@statement\par
379 \hskip5.5cm
380 \hfill\npu@a@signature\npu@comma\underline{\qqquad\qqquad\qqquad}\par
381 \hfill\hskip8.5cm \npu@ymd
382 \end{titlepage}}

```

定义定理环境

```

383 % ref amsthdoc.pdf
384 \newtheoremstyle{nputheorem}% name
385 {0pt}% Space above
386 {0pt}% Space below
387 {\itshape}% Body font
388 {}% Indent amount
389 {\bfseries}% Theorem head font
390 {}% Punctuation after theorem head
391 {.5em}% Space after theorem head
392 {}% Theorem head spec (can be left empty, meaning 'normal' )
393
394 \newtheoremstyle{npuplain}% name
395 {0pt}% Space above
396 {0pt}% Space below
397 {}% Body font
398 {}% Indent amount
399 {\bfseries}% Theorem head font
400 {}% Punctuation after theorem head
401 {.5em}% Space after theorem head
402 {}% Theorem head spec (can be left empty, meaning 'normal' )
403
404 \theoremstyle{npuplain} % set default style to npuplain

```

定义双栏符号表

```

405 \RequirePackage{nomenc} % add symbol notation
406 \RequirePackage{multicol} % for two column notation
407 % \AtEndPreamble{\makenomenclature}
408 \makenomenclature
409 \renewcommand{\nomname}{\npu@nomname}
410
411 % code come from @egreg
412 % https://tex.stackexchange.com/questions/78764/two-column-nomenclature
413 \ifundefined{chapter}
414 {\def\wilh@nomsection{section}}
415 {\def\wilh@nomsection{chapter}}
416
417 \def\thenomenclature{%
418 % \newlength{\npu@columnsep@save}
419 % \setlength{\npu@columnsep@save}{\columnsep}
420 % \setlength{\columnsep}{20pt}
421 % \begin{multicols}{2}[%

```

```

422     \csname\wilh@nomsection\endcsname*{\nomname}
423     \if@intoc\addcontentsline{toc}{\wilh@nomsection}{\nomname}\fi
424     \nom preamble % \raggedcolumns
425 % ]
426 \list{}{%
427     \labelsep=15pt
428     \labelwidth\nom@tempdim
429     \leftmargin\labelwidth
430     \advance\leftmargin\labelsep
431     \itemsep\nomitemsep
432     \let\makelabel\nomlabel}%
433 }
434 \def\endthenomenclature{%
435     \endlist
436 % \end{multicols}
437 % \setlength{\columnsep}{\npu@columnsep@save}
438 \nompostamble}

```

配置信息载入

```

439 \def\npu@degreename@zh{\if\npu@phd 博士\else 硕士\fi}
440 \def\npu@comma{~::~}
441 \def\npu@schoolno{学校代码}
442 \def\npu@classno{分类号}
443 \def\npu@secretlevel{密级}
444 \def\npu@authorno{学号}
445 \def\npu@title{题目}
446 \def\npu@author{作者}
447 \def\npu@major{学科、专业}
448 \def\npu@supervisor{指导教师}
449 \def\npu@applydate{申请学位日期}
450 \def\npu@schoolname{西北工业大学}
451 \def\npu@degree{\npu@degreename@zh 学位论文}
452 \def\npu@degreeclass{(学位研究生)}
453 \def\npu@rightmark{西北工业大学\npu@degreename@zh 学位论文}
454 \def\npu@Abstract{Abstract}
455 \def\npu@abstract{摘\quad 要}
456 \def\npu@Keywords{Key words}
457 \def\npu@keywords{关键词}
458 \def\npu@contents{目\quad 录}
459 \def\npu@nomname{符号表}
460 \def\npu@appendix{附\quad 录}
461 \def\npu@thanks{致\quad 谢}
462 \def\npu@work{攻读\npu@degreename@zh 学位期间发表的学术论文和参加科研情况}
463 \def\npu@work@paper{发表学术论文}
464 \def\npu@work@research{参加科研情况}
465 \def\npu@p@statement{学位论文知识产权声明书}
466 \def\npu@c@statement{学位论文原创性声明}
467 \def\npu@ymd{年\quad 月\quad 日}
468 \def\npu@a@signature{学位论文作者签名}
469 \def\npu@s@signature{指导教师签名}

```

470 `\long\def\npu@longp@statement{%`
 471 本人完全了解学校有关保护知识产权的规定，即：研究生在校攻读学位期间论文工作的
 知
 472 识产权单位属于西北工业大学。学校有权保留并向国家有关部门或机构送交论文的复印
 件
 473 和电子版。本人允许论文被查阅和借阅。学校可以将本学位论文的全部或部分内容编入
 有
 474 关数据库进行检索，可以采用影印、缩印或扫描等复制手段保存和汇编本学位论文。同
 时
 475 本人保证，毕业后结合学位论文研究课题再撰写的文章一律注明作者单位为西北工业大
 学。
 476 `\par` 保密论文待解密后适用本声明。`}`
 477 `\long\def\npu@longc@statement{%`
 478 秉承学校严谨的学风和优良的科学道德，本人郑重声明：所呈交的学位论文，是本人在
 导
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Change History

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