

# Using the L<sup>A</sup>T<sub>E</sub>X templates for authoring a dissertation in Physical Geography, Stockholm University

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# 1 Introduction

This documents provides support for understanding and using the L<sup>A</sup>T<sub>E</sub>X templates for typesetting the ‘Kappa’ and manuscripts in a PhD dissertation in Physical Geography. To get started with L<sup>A</sup>T<sub>E</sub>X you can start by reading the brief ‘Getting started with L<sup>A</sup>T<sub>E</sub>X authoring in Physical Geography’ which provides information on basic software and additional sources for learning. This is not a course in using L<sup>A</sup>T<sub>E</sub>X so I assume you have basic knowledge of how to generate output in your system. The focus here lies in successfully working with the templates to generate output to the printer. To get a quick introduction to L<sup>A</sup>T<sub>E</sub>X I recommend downloading the *Scientific writing with L<sup>A</sup>T<sub>E</sub>X* as well as many introductions on the web.

## 2 The NgDissertation package

A key component for making the Kappa and manuscripts is the NgDissertation package, essentially the file NgDissertation.sty. This file contains the nuts and bolts that makes the templates work. You must make sure you have a copy of this file in the same working folder as your templates you use for authoring the Kappa and manuscripts. You do not need to know much about the content of the file and the definitions residing inside it should not be tempered with unless you know exactly what you are doing. Note that the package is used for both the Kappa and the manuscripts and is made in such a way that it’s content adapts to the type of writing you perform.

It may be useful to know that the NGDissertation file calls for the following packages (in the order they appear in the file):

```
\usepackage{ifxetex}
\usepackage{fontspec} % if XeTeX
\usepackage[a4paper=true,xetex]{hyperref} % if XeTeX
\usepackage{tgtermes}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage[scaled=.90]{helvet}% Helvetica, served as a model for arial
\usepackage{hyperref}
\usepackage[swedish,english]{babel}
\usepackage{graphicx}
\usepackage{lipsum}
\usepackage{layout}
\usepackage[a4paper,left=40mm,right=35mm,top=30mm,bottom=25mm]{geometry}
\usepackage[separate-uncertainty=true,multi-part-units=single,
product-units=single,list-units=single,range-units=single]{siunitx}
\usepackage{multirow}
\usepackage{booktabs}
\usepackage[twoside]{rotating}
\usepackage{tabularx}
\usepackage{amsmath}
\usepackage{hanging}
\usepackage[toc,title,header]{appendix}
\usepackage{natbib}
\usepackage{dcolumn}
\usepackage{pgf}
\usepackage{tikz}
\usepackage{titlesec}
\usepackage{fancyhdr}
\usepackage[font={footnotesize,rm},format=plain,labelsep=period,
justification=justified,singlelinecheck=0]{caption}
\usepackage{authblk}
```

This means you should not load these package yourself. Also note that some packages are loaded with certain settings predefined. You can of course use additional features of the packages but need to check in the NgDissertation.sty file to make sure you are not inadvertently changing any crucial settings, thereby altering the intended use of the template.

## 2.1 Package summary

### 2.1.1 *ifxetex*

The `ifxetex` package call allows testing if Xe $\LaTeX$  is run. Xe $\LaTeX$  has slightly different requirements that regular ps $\LaTeX$ . Xe $\LaTeX$  allows  $\LaTeX$  to access the OpenType fonts of your computer directly. It is thus possible to make other font choices in Xe $\LaTeX$  that in pdf $\LaTeX$ . Xe $\LaTeX$  also accesses the utf8 and utf16 fonts directly whereas pdf $\LaTeX$  as  $\LaTeX$  requires specific packages to allow access to accented letters etc. directly.

### 2.1.2 *fontspec*

The `fontspec` package allows Xe $\LaTeX$  to recognise system fonts for use in  $\LaTeX$ . Through the `fontspec` package we load Times New Roman and Arial as standard fonts for the dissertation.

### 2.1.3 *hyperref*

The `hyperref` package allows for live links in the document. Among other things all headings become linked to the table of contents, references become linked to the reference list. Note that this is one package that requires specific settings for Xe $\LaTeX$ , which is why it resides in the `if` statement.

### 2.1.4 *tgtermes*

The `tgtermes` package provide Gyre Termes (a Times Roman clone) as default roman family for pdf $\LaTeX$ .

### 2.1.5 *inputenc*

The `inputenc` package provides pdf $\LaTeX$  access to accented letters on the keyboard. Without this package only basic ASCII characters and numbers are available (generic  $\LaTeX$ ).

### 2.1.6 *fontenc*

The `fontenc` package allows access to accented letters in the output from  $\LaTeX$ . It is necessary when using pdf $\LaTeX$ .

### 2.1.7 *helvet*

The `helvet` package provides the Helvetica font to pdf $\LaTeX$ .

### 2.1.8 *babel*

The `babel` package provide multilanguage support for  $\LaTeX$ . Many features in  $\LaTeX$  are predefined. For example, the word chapter is provided when writing a book. If you write a book in Swedish you want the Swedish word ‘Kapitel’ instead. Babel provides this if your use it to switch to Swedish. See the Babel documentation for more details.

### 2.1.9 *graphicx*

The `graphicx` package is fundamental for including graphics. The package supports JPEG, PNG, TIFF and PDF input.

### 2.1.10 *lipsum*

The `lipsum` packages provides access to the lipsum text. Lipsum is a latin text used by typesetters to produce masses of text to check layout etc. Simply type `\lipsum` in your document to get several paragraphs of words.

### 2.1.11 *layout*

The `layout` package provides a possibility to graphically view the current layout settings of the document. This is accomplished by entering the command `\layout` which generates the layout settings at that point. This command is used at the end of the template files for reference.

### 2.1.12 *geometry*

The `geometry` package provides simpler access to page settings. In the dissertation files, the margins are set according to the parameters of the command. A4 paper size is also requested.

### 2.1.13 *siunitx*

The `siunitx` package provides means to reproduce values and units correctly according to the SI system. In the dissertation `siunitx` is invoked with several options:

```
\usepackage[separate-uncertainty=true,multi-part-units=single,  
product-units=single,list-units=single,range-units=single]{siunitx}
```

These determine key behaviour of the package commands. Please refer to the `siunitx` package documentation for details.

### 2.1.14 *multirow*

The `multirow` package allows the user to make complex tables with different number of rows in different columns. It is akin to the `multicolumn` command in the `booktabs` package.

### 2.1.15 *booktabs*

The `booktabs` package provides better formatting possibilities for tables. I have used these in the sample tables in the templates.

### 2.1.16 *rotating*

The `rotating` packages allows rotation of full page figures and their captions on a page.

### 2.1.17 *tabularx*

The `tabularx` package allows tables with entries made up of longer pieces, multi-line, of running text.

### 2.1.18 *amsmath*

The `amsmath` package provides extensions to the generic mathematical functions of  $\text{\LaTeX}$ . It is invoked as a service and not used explicitly in the templates.

### 2.1.19 *hanging*

The `hanging` package allows you to typeset a single or sets of paragraphs with specified indentation. The package can be used to produce, for example, hanging indentations such as in a reference list.

### 2.1.20 *appendix*

The `appendix` package provides means to organize and format appendices in documents and is used internally.

### 2.1.21 *natbib*

The `natbib` package allows referencing using the author-date system.

### 2.1.22 *dcolumn*

The *dcolumn* package allows you to define your own table adjustments. There is already a defined column alignment that aligns numbers on the decimal separator.

### 2.1.23 *pgf*

The *pgf* package is part of TikZ and is probably obsolete as a call.

### 2.1.24 *tikz*

TikZ (Tikz ist kein Zeichenprogramm) is a tool to make line graphics directly in the  $\LaTeX$  document. It has tools for many different type of graphics including flow diagrams and even data plots.

### 2.1.25 *titlesec*

The *titlesec* package is used in the style file to reformat the section heading formats.

### 2.1.26 *fancyhdr*

The *fancyhdr* is a standard package to handle page header and footers.

### 2.1.27 *caption*

The *caption* package is used in the style file to modify the figure and table caption formats. the package is invoked with several options that specify the formatting of the captions.

```
\usepackage[font={footnotesize,rm},format=plain,labelsep=period,
             justification=justified,singlelinecheck=0]{caption}
```

### 2.1.28 *authblk*

The *authblk* package is used in the preamble to format the article header in manuscripts.

## 2.2 Details of the NgDissertation.sty

The first part of the style file contains a test whether Xe $\LaTeX$  or pdf $\LaTeX$  is run. There are specific settings that are unique to the two implementations and by detecting and choosing the right setup the templates should work under both implementations without any differences. As can be seen from the excerpt below the main issues concern *hyperref* and fonts.

```
%-----
% Attempt to work for both PdLaTeX and XeLaTeX
\usepackage{ifxetex}
\ifxetex
  \usepackage{fontspec}
  \setmainfont{Times New Roman}
  \setsansfont{Arial}
  \usepackage[a4paper=true,xetex]{hyperref}
\else
  \usepackage{tgtermes}
  \usepackage[utf8]{inputenc} %utf8
  \usepackage[T1]{fontenc}
  \usepackage[scaled=.90]{helvet}% Helvetica, served as a model for arial
  \usepackage{hyperref}
\fi
```

The next section deals with default naming of certain chapters. In the Kappa the default name for references is ‘Bibliography’. Here we change this to ‘References’

```
%-----
\usepackage[swedish,english]{babel}
\addto\captionsenglish{%
  \renewcommand{\bibname}%
    {References}%
}
```

Next is a section including loading many of the packages used in the dissertation. These have been listed and described above so we will not detail the section more.

The next section calls the `natbib` package and makes certain changes to the default reference formatting. Among other things we leave no extra vertical space between references. The main corrections come from a specific code called `natbibspacing.sty` which is available separately on the web, its origin is not clear so I cannot provide a particular source.

```
%-----
% Setting up reference list and reference
% system using natbib package
\usepackage{natbib}
%-----
% natbibspacing.sty:
\newdimen\bibspacing
\makeatletter
\setlength\bibspacing\z@
\renewenvironment{thebibliography}[1]{%
  \bibfont\bibsection\parindent \z@\list
  {\@biblabel{\arabic{NAT@ctr}}}{\@bibsetup{#1}}%
  \setcounter{NAT@ctr}{0}}%
  \ifNAT@openbib
    \renewcommand\newblock{\par}
  \else
    \renewcommand\newblock{\hskip .11em \@plus.33em \@minus.07em}%
  \fi
  \sloppy\clubpenalty4000\widowpenalty4000
  \sfcode\.=1000\relax
  \let\citeN\cite \let\shortcite\cite
  \let\citeasnoun\cite
    \itemsep\bibspacing %
    \parsep\z@skip %
}{\def\@noitemerr{%
  \PackageWarning{natbib}
    {Empty `thebibliography' environment}}%
  \endlist\vskip-\lastskip}
\makeatother
%-----
\setlength\bibspacing{0pt}
```

The next section introduces a new table alignment, aligning on the period. This can be achieved through the `dcolumn` package and by using its `newcolumn` command. The command works in the following way. The first entry is the symbol that should later go into the alignment part of the tabular environment. The second is another command `D` with three entries. These three are the symbol around which the column should be centred, the symbol that should be used as decimal separator in the table and the number of decimal places. You need to look into the documentation to figure out the type of actions that can be made. You can obviously create your own definitions using the `newcolumntype` command in the preamble of your Kappa or manuscript.

```
%-----
% Creating decimal point centred table entries
\usepackage{dcolumn}
\newcolumntype{d}{D{.}{.}{-1}}
\newcolumntype{.}{D{.}{.}{1}}
```

The next section calls `tikz` and `pgf` and defines all the Stockholm university colours. The colour definition command `definecolor` is actually part of the package `xcolor` which is called by `tikz` and therefore is implicitly always present.

```
%-----
% Define SU colours
\usepackage{pgf}
\usepackage{tikz}
\definecolor{SUBBlue}{cmyk}{1.00,0.70,0.00,0.60}
\definecolor{SUOLive}{cmyk}{0.25,0.10,0.60,0.20}
\definecolor{SUSky}{cmyk}{0.35,0.00,0.10,0.00}
\definecolor{SUWater}{cmyk}{0.40,0.15,0.00,0.05}
\definecolor{SUFire}{cmyk}{0.00,0.65,1.00,0.00}
\definecolor{SUSilver}{cmyk}{0.12,0.08,0.08,0.23}
\definecolor{SUGold}{cmyk}{0.30,0.40,0.80,0.15}
```

The next section sets up `hyperref` so that links are invisible. Links are automatically generated for figures, tables, references and the table of contents within the document. You also get access to the `href` command which allows you to link to external url:s and email addresses.

```
%-----
% Setup HyperRef behaviour
\hypersetup{
  unicode=false,          % non-Latin characters in 'Acrobats bookmarks
  pdftoolbar=true,        % show 'Acrobats toolbar?
  pdfmenubar=true,        % show 'Acrobats menu?
  pdfwindow=true,         % window fit to page when opened
  pdfstartview={FitH},    % fits the width of the page to the window
  pdfnewwindow=true,      % links in new window
  colorlinks=true,        % false: boxed links; true: colored links
  linkcolor=black,        % color of internal links (change box color with
                          % linkbordercolor)
  citecolor=black,        % color of links to bibliography
  filecolor=red,          % color of file links
  urlcolor=black          % color of external links
}
```

The next section uses `titlesec` to set up the section headings. Note that chapter only occur in the Kappa.

```
%-----
% Changing specs for headings
\usepackage{titlesec}
\makeatletter
\@ifclassloaded{book}%
{
  \titleformat{\chapter}[hang]
    {\normalfont\sffamily\Huge\bfseries}
    {\thechapter}{20pt}{\Huge}%
}
\makeatother
\titleformat{\section}
  {\normalfont\sffamily\Large\bfseries}
  {\thesection}{1em}{}
\titleformat{\subsection}
  {\normalfont\sffamily\bfseries}
  {\thesubsection}{1em}{}
\titleformat{\subsubsection}
  {\normalfont\sffamily\itshape}
  {\thesubsubsection}{1em}{}

```

The next section uses the `fancyhdr` package to set up the header and footer of the kappa and articles.

```
%-----
% Invoke special headers and page numbering
\usepackage{fancyhdr}
\renewcommand{\sectionmark}[1]{\markright{\thesection.\ #1}}
\pagestyle{fancy}
\fancyhead{}
\fancyhead[L0]{\scriptsize\itshape\AuthorName}
\fancyhead[RE]{\scriptsize\itshape\AbbrevTitle}
\fancyfoot[C]{\thepage}
\renewcommand{\headrulewidth}{0pt}
\fancypagestyle{plain}{%
\fancyhf{}
\fancyfoot[C]{\thepage}
\renewcommand{\headrulewidth}{0pt}
\renewcommand{\footrulewidth}{0pt}}

```

The next section uses the `caption` package to make global changes to the look of figure and table captions.

```
\usepackage[font={footnotesize,rm},format=plain,labelsep=period,
  justification=justified, singlelinecheck=0]{caption}
```

Next are a few general settings that influence text and floats.

```
\raggedbottom
\makeatletter
\setlength{\@fptop}{0pt}
\makeatother
```



The `\raggedbottom` helps prevent unsightly spaces between paragraphs when  $\text{\LaTeX}$  tries to stretch the text to fill the text area. The next three lines changes settings for floats so that a single float on an otherwise empty page does not end up vertically centred on the page.

The next section sets up the `frontmatter` command which produces the first several pages of a dissertation Kappa. The command is already in the Kappa template and the user only needs to fill out the parts needed. Note that there is room for a quote but that and any quote reference is not mandatory and can be left empty.

```
%-----
% Command for type-setting first two pages.
% Usage:
%\FrontMatter{Enter dissertation title}%
%           {Enter dissertation sub title}%
%           {Enter your name as you want it to appear}%
%           {Enter any quote you wish to have}%
%           {Enter the source of the quote}%
%           {Enter the print ISBN number}%
%           {Enter the pdf ISBN number}%
%           {Enter the Cover image caption and source}%
%           {Enter year of dissertation publication}
\newcommand{\FrontMatter}[8]{%\pagenumbering{gobble}
\section*{}
\vskip30mm
\begin{center} {\normalfont\sffamily\huge\bfseries #1} \end{center}
\vskip20mm

\begin{center} {\normalfont\sffamily\large\bfseries #2} \end{center}
\vfill

\begin{center} {\normalfont\sffamily
                \includegraphics[width=25mm]{logo-org-engelsk_rgb.pdf}
\vskip10mm

Department of Physical Geography\\ Stockholm University\\
Stockholm #7 \\
} \end{center}

\thispagestyle{empty}\newpage

\section*{}
\vskip20mm
\begin{center}
    {\normalfont\sffamily\emph{#3\\ {\color{white}-} #4}\\ }
\end{center}

\vfill
{\normalfont\sffamily\noindent\copyright\ #2, Stockholm University #8\\
Cover illustration: #7\\
ISBN: #5 (print)\\
\phantom{ISBN:} #6 (pdf)\\
ISSN: 1653-7211\\
Type set with \LaTeX\ using Department of Physical Geography dissertation template \\
Published articles typeset by respective publishers, reprinted with permission \\
Printed by: Universitetsservice US-AB, Stockholm, #8 \\
Distributor: Department of Physical Geography, Stockholm University\\
}

\thispagestyle{empty}\newpage}
% End of \FrontMatter command
```

The next section sets up the entry for type setting manuscript and article references of work included in the dissertation. It also sets up the author contribution text. Authors only need to fill out these commands in the quantity they need.

```
%-----
% Entry for dissertation content table and author contribution content
% usage for dissertation article reference
% \DissertationContent{Enter article number}{Enter full reference}
% usage for dissertation contributorship description:
% \AuthorContrib{Enter article number}{Enter contribution text}
\newcommand{\DissertationContent}[2]{\textbf{#1} &\small \hangpara{5mm}{1}{#2} \\}
```

```
\newcommand{\AuthorContrib}[2]{\textbf{#1} &\small #2 \\\ }
```

The next section uses the authblk package to set up the article title, author and author affiliation for manuscripts.

```
%-----
% Uses authblk to design the author presentation
% and abstract of manuscripts in the dissertation.
\usepackage{authblk}
\makeatletter
\@ifclassloaded{article}%
{
  \renewcommand\Authfont{\sffamily\large}
  \renewcommand\Affilfont{\sffamily\itshape\footnotesize}
  \makeatletter
  \renewcommand\@maketitle{%
    \noindent\makebox[\textwidth][c]{%
      \begin{minipage}{\textwidth}
        \vskip 2em
        \let\footnote\thanks
        {\sffamily\LARGE\bfseries \@title \par}
        \vskip 1.5em
        {\@author \par}
      \end{minipage}%
    }
    \vskip 1em \par
  }\makeatother
}
{}
\makeatother
%-----
\makeatletter
\@ifclassloaded{article}%
{
  \renewenvironment{abstract}{%
    {\vspace{3mm}\noindent\sffamily\bfseries
      \abstractname\vspace{2mm}\vspace{0pt}}\%
    \noindent\begin{minipage}{\textwidth}\small}
    {\par\noindent\end{minipage}}
  }
  {}
\makeatother
```

Finally we format the behaviour of appendices in the article class to ensure that tables, figures and equation numbers are preceded by the ordering letter of the appendix.

```
%-----
% Adjusting float numbers in appendix of article
\newcommand{\AppendixNumbering}{%
  \renewcommand{\thefigure}{\thesection\arabic{figure}} \setcounter{figure}{0}
  \renewcommand{\thetable}{\thesection\arabic{table}} \setcounter{table}{0}
  \renewcommand{\theequation}{\thesection\arabic{equation}}
    \setcounter{equation}{0}
}
}
```

### 3 The ‘Kappa’ template

The Kappa template is based on the L<sup>A</sup>T<sub>E</sub>X book class. This means you can expect all the features available in the book class to apply in this template. In the following I will detail the parts where you need to make adjustments. There are additional commands and instructions in the file that should not be touched. these are labelled by a comment stating they should not be removed.

The Kappa template file contains a few input fields that you need to complete. The first few lines contains two sections:

```
%-----
% Add your own required material here:
\newcommand{\d0}{\delta^{18}$0} %just as an example
%-----
% MUST BE FILLED IN BY YOU:
\newcommand{\AuthorName}{} % Fill in your name
\newcommand{\AbbrevTitle}{} % Fill in abbreviated dissertation title
%-----
```

The first is where you can put your own definitions or package calls. The second calls for your input. There are two fields, the first where you need to enter your own name and the second where you need to provide an abbreviated title of the dissertation. These two fields will be printed on each page as a header. It is thus important that the abbreviated title is kept very short.

The next part is a critical set of input fields

```
%-----
% MUST BE FILLED IN BY YOU:
\FrontMatter{'Enter dissertation title, use \\ to force a break'
            \\ \vskip10mm {\Large You can add a subtitle on a separate row}}%
{'Enter your name as you are registered in Ladok'}%
{'Enter any quote you wish to have or leave empty'}%
{'Enter the source of the quote'}% leave empty?
{'Enter your print ISBN number'}% ISBN print
{'Enter your pdf ISBN number'}% ISBN pdf
{'Enter the Cover image caption and source'}%
{'Enter year of dissertation publication'}
```

- The first field should contain your full dissertation title. If your title contains a subtitle you need to start the subtitle on a separate line using \\ \vskip10mm. The subtitle should also be set by a smaller type size so set the subtitle with the font size command \Large.
- The second field is your own name as you want it shown on the dissertation.
- The third and fourth fields can be left empty but are intended to provide mean for adding a quote and source for the quote.
- The fifth and sixth fields should contain two ISBN numbers, one for the pdf and one for the print that you will have requested for your dissertation.
- The seventh field should contain a caption for your cover image and the source for that image, including existing copyrights.
- The eighth field should contain the publication year of your dissertation

The front matter command produces the first two pages of the dissertation and sets all the necessary components correctly.

The abstract is set as normal text but should be set with a smaller than normal type size

```
\section*{Abstract}
{\small% fit the Abstract text below
  ---insert text here---
}% end of Abstract
```

The abstract must not be longer than 3500 characters including space (standard for A4). This abstract should be identical to your dissertation abstract on the nailing sheet (the one you register in DiVA). The Swedish Sammanfattning is entered in an identical way. Make sure the Sammanfattning does not exceed one page in length. I estimate this to possibly 4500 characters including spaces.

The author articles (and manuscripts) included in the dissertation are listed using the following code

```
{\renewcommand{\arraystretch}{1.4}
\noindent\begin{tabularx}{130mm}{1 X}
\DissertationContent{I}{Formatted reference text within curly brackets}
\DissertationContent{II}{ }
\DissertationContent{III}{ }
\DissertationContent{IV}{ }
\end{tabularx}
}
```

There needs to be one \DissertationContent command for each article. You need to manually number the articles. In the example I have chosen to number using roman capital numerals instead of arabic. This is because the roman numerals differ from remaining text and makes references to, for example 'Article II' stand out better than 'Article 2'. You can choose whichever system you wish but make sure the same numeral system is used throughout the Kappa when referencing the appended articles.

Following the content is the description of author contributions. This section is similar to the one for the articles but uses a slightly different command

```

{\renewcommand{\arraystretch}{1.4}
\noindent\begin{tabularx}{130mm}{1 X}\small
\AuthorContrib{I}{Author contribution text between brackets.
Separate any paragraphs within the text with empty line and \vskip1mm

before the next paragraphs starts}
\AuthorContrib{II}{}
\AuthorContrib{III}{}
\AuthorContrib{IV}{}
\end{tabularx}
}

```

As can be seen above the command `\AuthorContrib` should contain a running text describing the contributions of all authors. This can be done in several way, either by listing each author and what they have contributed. Or, by listing different important scientific aspects of the research process including original idea, field work, analysis, and writing.

If the text for a specific article consists of more than one paragraph, then paragraphs need to be separated by an empty line and `\vskip1mm` as in the code above.

The remaining Kappa template follows the ordinary book class in that the highest order for headings is the chapter followed by section and subsection. I strongly advice against using the fourth level `\subsubsection{}`.

## 4 The manuscript template

The manuscript template is based on the article class. Hence it will be similar to any other manuscript you have authored in  $\text{\LaTeX}$ . The manuscript template does not contain much that differs from an ordinary article so I will focus only on the parts that differ.

The first section for title and authors differs from the normal article class

```

%-----
% Fill in the following; adjust as needed
\title{`This is the title for my article'}
\author[1]{First Author}
\author[2]{Second Author}
\author[3]{Third Author}
\author[2]{Fourth Author} %add more if needed
\affil[1]{Address of first author}
\affil[2]{Address of second and fourth author}
\affil[3]{Address of third author}
\maketitle% do not remove

```

As you can see you provide the title as usual in a title field. The authors are then entered separately on a separate line for each using the `\author` command. The number associated with each name corresponds to the affiliation entries you provide below. As you can see from the example, this is how you couple names to their affiliations. You need to adjust the number of fields depending on the number of authors.

The abstract is entered as regular text in a specified abstract environment:

```

%-----
% Manuscript abstract
\begin{abstract}

\end{abstract}

```

You do not need to provide the word ‘Abstract’ since that will be automatically inserted.

There are no other features in the template that differs from a regular article class file.

## 5 Referencing

Both templates use the `natbib` package for author–date type referencing. In the templates, I have set up the bibliography for using both the semi-automatic referencing through the `\bibitem` command for entering reference items and the fully automatic using a `BibTeX` data base file. In the semi-automatic case you need to format your references yourself. If you use the fully automatic system, I have supplied a bibliography style file with the template. This style is the Council of Science Editors (CSE) style which

is a general and simple style. If you use a Bib $\TeX$  data base for your referencing, this will be a useful style to follow. Please check the `natbib` documentation for details.

## 6 Figures

The template uses the `graphicx` package for handling graphics. This package can handle most graphics formats. For line graphics I can recommend using PNG format unless you wish to include pdf vector based graphics. I have found that a horizontal pixel count of 1500 provides a very good standard for ‘textwidth’-size figures. PNG compresses well but should not be used for photographs. Low compression JPG is a good middle way for photographic images. TIFF images are generally the best but provide no significant compression and will thus not keep file sizes down.

Please make sure that any bitmap image has a resolution of about 300 dpi at the physical scale it will be reproduced. Note also that you should scale the image as a fraction of the `\textwidth` in the `\includegraphics` command. Please refer to the `graphicx` documentation for details on using graphics in  $\LaTeX$ .

## 7 Tables

Tables are among the more laborious items to typeset. In the template several packages are loaded that provide additional features to the standard  $\LaTeX$  features. The packages are `booktabs`, `dcolum`, `multirow` and `tabularx`. Please refer to the documentation for details. With `dcolum`, I have defined an alignment which aligns numbers on their decimal point. This is accomplished by using a `d` as alignment in the tabular environment. You can, of course, make your own definitions with `dcolum` or look into the `siunitx` package

## 8 Using text from Word in the templates

Essentially you can copy text directly from Word to  $\LaTeX$ . There are, however, a few pitfalls. There exists translation tools that will take a Word file and generate a  $\LaTeX$ -file. Although these do a good job when looking at the end result, my experience is that the translations are overly complicated and I have stayed clear of them. I will outline a simple work-flow for transferring text without running into too many problems. Key as always is to keep good attention to details.

As for the differences between Word and  $\LaTeX$ , you must remember that paragraphs in  $\LaTeX$  are identified by an empty line, this is not the case in Word. I strongly urge you to insert empty lines between paragraphs in word before copying text into your  $\LaTeX$ -editor. Any formatting you have done in Word will be lost. This means you need to reformat the text, for example, bold and italics, font sizes, super and sub-scripts, once it is in your  $\LaTeX$ -editor. It is therefore not necessary to spend an inordinate amount of time formatting the text in Word if you can avoid it. In addition, you need to make sure the symbols used in a manuscript are correctly converted. Mathematical formulas made with the equation editor in Word are not translated at all.

Mathematical notation, is best displayed if you reformulate them in correct  $\LaTeX$  code. You will run into problems if you have used the  $\pm$  sign, a  $\delta$  or other symbols in Word and keep them in your  $\LaTeX$ -file, if nothing else they will simply appear as a blank space but can also cause an ‘unknown character’ error. I should also mention that you should pay special attention to mathematical notation since this is for what  $\LaTeX$  was originally developed and hence is completely superior at handling as long as you do it correctly.

If you cut and paste a large chunk of a word file into  $\LaTeX$ , you are almost begging for problems. I have found that the best way to move text between the systems is to do it paragraph by paragraph. You may think this is backwards but the benefit is that you can compile the text after each added paragraph and if an error suddenly appears, the problem should be possible to spot in the new paragraph. Note that this does not necessarily mean you must copy text one paragraph at a time, you can copy it all but then insert the `\end{document}` command after the first paragraph, compile and then move the command to after the following paragraph and recompile until you have gone through the entire document. Even if you write material directly in  $\LaTeX$  and you are not savvy, then compiling often is a good way to stay clear of lengthy debugging sessions.