Fangbo's LaTeX template

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1 Introduction

aaaa

bccccccc

ddd

2 Spacing and font size

2.1 For paragraph

The most useful three commands

```
\setlength{\parindent}{0pt}   %indent space
\setlength{\parskip}{1em}     %top, bottom space
\renewcommand{\baselinestretch}{1.0} % line spacing
```

2.2 For heading

use package *titlesec* and commands *titleformat*, *titlespacing*

```
\usepackage{titlesec}
\titleformat{\section}{\normalfont\large\bfseries}{\thesection}{1em}{}
\titleformat{\subsection}{\normalfont\normal\bfseries}{\thesubsection}{1em
    }{}
\titlespacing\section{0pt}{12pt plus 4pt minus 2pt}{0pt plus 2pt minus 2pt}
\titlespacing\subsection{0pt}{12pt plus 4pt minus 2pt}{0pt plus 2pt minus 2
    pt}
```

3 Colored hyperlinks for figures, tables, citations

use hyperref package to change the default color and set hyperlinks

```
\usepackage[colorlinks=true,urlcolor=purple,citecolor=green,linkcolor=blue]{
    hyperref}
```

4 Citation

1. write and cite a reference in this file itself. [1]

```
\begin{thebibliography}{9}
\bibitem{sett}
Arezoo Sadrinezhad, Kallol Sett and S. I. Hariharan.
Efficient solution algorithms for multiaxial probablistic elasto-plastic
    constitutive simulations of soils.
\textit{Int J Numer Anal Mech Geomech}. 2017; 0:1-21.
\end{thebibliography}
```

5 Display code

In the preamble part, paste this

```
\usepackage{listings}
\lstset
{
    breaklines=true,
    basicstyle=\tt\scriptsize,
    keywordstyle=\color{magenta},
    identifierstyle=\color{blue},
    frame=single
}
```

When pasting code in document, use begin{lstlisting} and end{lstlisting}

```
clc; clear;
leftbound=-20; rightbound=20; meshpoint=2000;
stressmesh=linspace(leftbound, rightbound, meshpoint);
% standard normal assumption;
u00=exp(-stressmesh.*stressmesh/2)/sqrt(2*pi);
timestart=10; dt=0.01;
N1=100;  N2=1;
```

6 Equations

6.1 one short equation (use *equation*)

$$c = a + b \tag{1}$$

```
\begin{equation}
c=a+b
\end{equation}
```

6.2 one long equation (use *multiline*)

$$p(x) = 3x^6 + 14x^5y + 590x^4y^2 + 19x^3y^3 + 590x^4y^2 + 19x^3y^3 - 12x^2y^4 - 12xy^5 + 2y^6 - a^3b^3 \tag{2}$$

```
\begin{multline}
p(x) = 3x^6 + 14x^5y + 590x^4y^2 + 19x^3y^3 + 590x^4y^2 + 19x^3y^3\\
- 12x^2y^4 - 12xy^5 + 2y^6 - a^3b^3
\end{multline}
```

6.3 multiple equations (use *eqnarray* ,*align*, *gather*)

$$a = b + c \tag{3}$$
$$= d + e \tag{4}$$

```
\begin{align}
a & = b + c \\
& = d + e
\end{align}
```

$$2x - 5y = 8$$
$$3x^2 + 9y = 3a + c$$

```
\begin{gather}
2x - 5y =  8 \\
3x^2 + 9y =  3a + c
\end{gather}
```

$$2x - 5y = 8 \tag{}$$
$$3x^2 + 9y = 3a + c \tag{}$$

```
\begin{eqnarray}
a & = & b + c \\
& = & d + e
\end{eqnarray}
```

$$\begin{aligned} a &= b + c && (5)\\ &= d + e && (6) \end{aligned}$$

Note that *align* only needs one &, *eqnarray* needs two &. Although the above commands work most of the time, it is recommmended to use *IEEEeqnarray*. Read << How to typeset equations in Latex, Stefan Moser>> for typing complex equations.

```
\begin{IEEEeqnarray}{rCl}
N_{(1)_m}^{q^{eq}} &=& P[f>0] N_{(1)_{m}}^{q^{ep}}  \\
N_{(2)_{mn}}^{q^{eq}} &=& P[f>0] N_{(2)_{mn}}^{q^{ep}}
\end{IEEEeqnarray}
```

$$\begin{IEEEeqnarray}{rCl} N_{(1)_m}^{q^{eq}} &=& P[f>0] N_{(1)_{m}}^{q^{ep}} \quad (7)\\ N_{(2)_{mn}}^{q^{eq}} &=& P[f>0] N_{(2)_{mn}}^{q^{ep}} \quad (8) \end{IEEEeqnarray}$$

6.4 Collection of some equations

$$D_{ijkl} = \begin{cases} a \\ b \end{cases} \tag{9}$$

```
\begin{eqnarray}
D_{ijkl} =
\left\{
\begin{array}{ll}
a \\
b
\end{array}
\right.
\end{eqnarray}
```

$$x = y \qquad w = z \qquad a = b + c \tag{10}$$

$$2x = -y \qquad 3w = \frac{1}{2}z \qquad a = b \tag{11}$$

$$-4 + 5x = 2 + y \qquad w + 2 = -1 + w \qquad ab = cb \tag{12}$$

```
\begin{align}
x&=y           &   w &=z               &   a&=b+c\\
2x&=-y         &   3w&=\frac{1}{2}z    &   a&=b\\
-4 + 5x&=2+y   &   w+2&=-1+w           &   ab&=cb
\end{align}
```

7 Making handouts for beamer presentations

Ever wondered how to avoid the overlays when you want a printout from your beamer presentation? Just put the handout option in your beamer presentation.

```
\documentclass[12pt,handout]{beamer}
```

If you then want t o also print everything on one page (as Steve did for his Away Day talk) then just do this

```
\documentclass[a4paper]{article}
\usepackage{pdfpages}

\begin{document}
\includepdf[pages=1  -last,nup=2x2,landscape=false,frame=true,
            noautoscale=true,scale=0.6,delta=0mm 5mm]{mypresentation.pdf}
\end{document}
```

where mypresentation.pdf is your beamer presentation which you created with the handout options (so without overlays). In this example 4 beamer slides are printed on one page (2x2).

References

[1] Arezoo Sadrinezhad, Kallol Sett and S. I. Hariharan. Efficient solution algorithms for multiaxial probablistic elasto-plastic constitutive simulations of soils. *Int J Numer Anal Mech Geomech*. 2017; 0:1-21.

[2] Chuli Fu, Xiangtuan Xiong and Zhi Qian. Fourier regularization for a backward heat equation. *Jounal of Mathematical Analysis and Applications*. 2007; 331:471-480.