Finnish Mechanics Days 2024

Instructions to authors for the submitting abstract to Finnish Mechanics Days 2024

First Author[1], Second Author and Third Author

Abstract This article describes the use of FMDstyle_en.cls class file for authors using LaTeX 2_ε computer typesetting system for abstracts intended for Finnish Mechanics Days book of abstract.

Please note that this style is modified version of rmstyle.cls which can be later on changed and used for submitting manuscript in the *Journal of Structural Mechanics*.

Key words: class file, instructions, Finnish Mechanics Days

Description

The manuscript should be submitted in electronic form to the fmd@jamk.fi The recommended length of an abstract is of about 1–2 pages.

By submitting a manuscript to the conference, the author/authors permits the publication of an abstract on the website under the CC BY-SA 4.0 license. Details of the Creative Commons licenses can be found from the webpage http://creativecommons.org/.

Mandatory components of the abstract submission

Using the class file FMDstyle_en.cls the title and authors can be defined as in the present instructions:

```
\title{Instructions to authors for the abstract submission}
\author{First Author, Second Author and Third Author}
```

After the document opening, i.e. after the `\begin{document}`command follows the summary, using the `summary`-environment as:

```
\begin{summary}
The text of the summary here
\end{summary}
```

After the summary four to then key words should be provided using the `keywords`-environment:

```
\begin{keywords}
keyword1, keyword2
\end{keywords}
```

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LaTeX 2ε definitions

The class file FMDstyle_en.cls automatically includes the following macro packages: `amsfonts`, `amsmath`, `amssymb`, `amsbsy`, `booktabs`, `calc`, `epsfig`, `graphicx`, `lastpage, paralist, stmaryrd`.

Encoding is defined as `\RequirePackage[latin1]{inputenc}`. For Windows or Macintoshin it is recommended to change `latin1` to `ansinew` or `applemac`, respectively.

Some mathematical operators and bold greek alphabets are defined in the FMDstyle_en.cls class file, see subsection "Mathematical formulas".

Mathematical formulas

Mathematical formulas should be centered and the equation numbers placed in the right hand side as

$$f(\sigma_{ij}, K^\alpha) = \sqrt{3J_2} - \sigma_{\mathrm{y}0} - K = 0, \tag{1}$$

where J_2 is the second invariant of the deviatoric stress tensor.

Matrices and vectors should be written in bold, or alternatively vectors can be denoted by an arrow above the symbol as in the following equation

$$\boldsymbol{x}^+ = \boldsymbol{c} + \boldsymbol{Q}\boldsymbol{x}, \quad \text{or} \quad \vec{x}^+ = \vec{c} + \boldsymbol{Q}\vec{x}. \tag{2}$$

Slanted bold symbols are produced with command `\boldsymbol{A}` or `\bo{A}`, which results in $\boldsymbol{A}$. For upright bold symbols use command `\mathbf{A}` or `\bu{A}`, which results in $\mathbf{A}$.

Also bold greek symbols are defined in the class file using commands like $\boldsymbol{\alpha}, \boldsymbol{\beta}$ etc., see table 1.

For the divergence-, gradient-, deviator- and trace-operators and the differential, the following command are defined: `\diver`, `\Div`, `\grad`, `\Grad`, `\tr`, `\dd{.}`, the use of them is illustrated in the following equations

$$-\operatorname{div}\boldsymbol{\sigma} = \rho\boldsymbol{b} - \rho\frac{\mathrm{d}\boldsymbol{v}}{\mathrm{d}t}, \tag{3}$$

$$-\operatorname{Div}(\boldsymbol{S}\cdot\boldsymbol{F}^T) = \rho_0\boldsymbol{b}_0 - \rho_0\ddot{\boldsymbol{x}}, \tag{4}$$

$$\boldsymbol{L} = \operatorname{grad}\boldsymbol{v}, \tag{5}$$

$$\boldsymbol{F} = \operatorname{Grad}\boldsymbol{\chi}, \tag{6}$$

$$\boldsymbol{\sigma} = \operatorname{dev}\boldsymbol{\sigma} + \tfrac{1}{3}\operatorname{tr}(\boldsymbol{\sigma})\boldsymbol{I}. \tag{7}$$

In addition the jump-brackets and the energy norm, `\jump{u}` and `\enorm{u}` , are defined producing $[\![u]\!]$ and $|\!|\!|u|\!|\!|$, respectively.

Figures and tables

Tables

In producing tables clarity should be emphasised. The following simple rules should be respected:

1. Don't use vertical lines.
2. Don't use double lines.
3. Write the units in the headings of each column, not inside the tabulated material.

Table 1. Bold greek symbols.

small command	result	small command	result	capital command	result
\balpha	$\boldsymbol{\alpha}$	\bmu	$\boldsymbol{\mu}$	\bGamma	$\boldsymbol{\Gamma}$
\bbeta	$\boldsymbol{\beta}$	\bnu	$\boldsymbol{\nu}$	\bDelta	$\boldsymbol{\Delta}$
\bgamma	$\boldsymbol{\gamma}$	\bxi	$\boldsymbol{\xi}$	\bTheta	$\boldsymbol{\Theta}$
\bdelta	$\boldsymbol{\delta}$	\brho	$\boldsymbol{\rho}$	\bLambda	$\boldsymbol{\Lambda}$
\bepsilon	$\boldsymbol{\epsilon}$	\bsigma	$\boldsymbol{\sigma}$	\bXi	$\boldsymbol{\Xi}$
\bvepsilon	$\boldsymbol{\varepsilon}$	\btau	$\boldsymbol{\tau}$	\bPi	$\boldsymbol{\Pi}$
\bzeta	$\boldsymbol{\zeta}$	\bphi	$\boldsymbol{\phi}$	\bSigma	$\boldsymbol{\Sigma}$
\bet	$\boldsymbol{\eta}$	\bvphi	$\boldsymbol{\varphi}$	\bPhi	$\boldsymbol{\Phi}$
\btheta	$\boldsymbol{\theta}$	\bchi	$\boldsymbol{\chi}$	\bPsi	$\boldsymbol{\Psi}$
\bkappa	$\boldsymbol{\kappa}$	\bpsi	$\boldsymbol{\psi}$	\bOmega	$\boldsymbol{\Omega}$
\blambda	$\boldsymbol{\lambda}$	\bomega	$\boldsymbol{\omega}$		

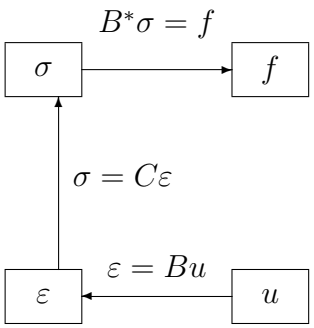

Figure 1. The dual structure of continuum mechanics.

4. Write always something before the decimal dot.
5. Don't use any kind of "see. above"-like phrases.

However, try to avoid such kind of listings. A more concise version is given as: (i) don't use vertical lines, (ii) don't use double lines, (iii) write the units in the heading of each column, not inside the tabulated material, (iv) write always something before the decimal dot and (v) don't use ant kind of "see above"-like phrases.

In the class file smp12style.cls the package `booktabs` is included. It is highly recommended to utilize the possibilities of this package, see table 1, or reference [4].

Figures

The figures should be clear, readable and uniquely defined. An example, see figure 1.

List of references

The list of references should be done using a numbered list in an alphabetical order based on the family name of the first author. The authors should respect the standard BibTEX:n style. The citations to books can be done like [3] and to articles like [1]. Please, add also

the web addresses (for example the permanent addresses DOI or URN) of the source material, like in refs. [1] and [2], if available.

References

[1] R. Barretta. Analogies between Kirchhoff plates and Saint-Venant beams under flexure. *Acta Mechanica*, 225(7):2075–2083,2014. doi:10.1007/s00707-013-1085-x

[2] J. Hakala. Elektronisten julkaisujen tunnistaminen. Versio 4.0, 13.8.2007. http://urn.fi/URN:NBN:fi-fe20071780

[3] L.E. Malvern. *Introduction to the Mechanics of a Continuous Medium*. Prentice-Hall, Englewood Cliffs, New Jersey, 1969.

[4] F. Mittelbach and M. Goossens. *The LaTeX Companion*, Addison-Wesley, 2. painos, 2004.