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Instructions to authors for the journal article

First Author¹, Second Author and Third Author

Summary. This article describes the use of `rmstyle.cls` class file for authors using $\text{\LaTeX} 2_{\epsilon}$ computer typesetting system for manuscripts intended for publication in the *Journal of Structural Mechanics (Rakenteiden Mekaniikka)*.

Key words: class file, instructions, Rakenteiden Mekaniikka

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Description

The scope of the journal includes theoretical, computational and experimental mechanics of solids and fluids and mathematics related to these fields. Examples of possible topics are static and dynamic analyses of strength of structures, multibody dynamics, fluid mechanics, interaction of fluids and structures, design of structures and machines, structural optimization, functionality of structures in extreme conditions, smart machines and structures, vibration mechanics, contact mechanics, rotor dynamics, fracture mechanics and fatigue, thermomechanics, soil and rock mechanics, material technology, new materials, optimal control of dynamic systems, FEM, biomechanics, micromechanics, industrial and medical applications of mechanics, and teaching of mechanics and strength of materials.

The manuscript should be submitted in electronic form to the editor-in-chief or to the guest editors in the case of a special issue. The recommended length of an article is of about 10–20 pages. Please, be sure that you use the latest template and class-file by checking it from the journal's web-site <http://rmseura.tkk.fi/rmlehti/english.html>. This instruction file is dated May 11, 2017.

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The journal Rakenteiden Mekaniikka is committed to the responsible conduct of research guidelines published by the Advisory Board of Research Integrity (TENK) http://www.tenk.fi/sites/tenk.fi/files/HTK_ohje_2012.pdf. All the manuscripts

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submitted to the journal will be peer reviewed by at least two experts and performed in line with the quality and ethical criteria imposed by the scientific community.

The front page

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

```
\volume{48}
\issue{X}
\year{2015}
\title{Instructions to authors for the journal of \ structural mechanics}
\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}
```

After key words the start the essential body of the text.

Please notice: in the title and section headings use capitals minimally, as in an ordinary sentence.

\LaTeX 2 _{ϵ} definitions

The class file `rmstyle.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 Macintosh it is recommended to change `latin1` to `ansinew` or `applemac`, respectively.

Some mathematical operators and bold greek alphabets are defined in the `rmstyle.cls` class file, see subsection “Mathematical formulas”.

The body of the article

Standard text

The article should be divided into sections using the command `\section{.}` and possibly in subsections with command `\section{.}`. The section titles appear without numbers and are automatically capitalized. Third level sectioning is also possible with command `\subsubsection{.}`, but it should be avoided if possible.

Mathematical formulas

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

$$f(\sigma_{ij}, K^\alpha) = \sqrt{3J_2} - \sigma_{y0} - K = 0, \quad (1)$$

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

$$\mathbf{x}^+ = \mathbf{c} + \mathbf{Q}\mathbf{x}, \quad \text{or} \quad \vec{x}^+ = \vec{c} + \mathbf{Q}\vec{x}. \quad (2)$$

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

$$-\text{div } \boldsymbol{\sigma} = \rho \mathbf{b} - \rho \frac{d\mathbf{v}}{dt}, \quad (3)$$

$$-\text{Div}(\mathbf{S} \cdot \mathbf{F}^T) = \rho_0 \mathbf{b}_0 - \rho_0 \ddot{\mathbf{x}}, \quad (4)$$

$$\mathbf{L} = \text{grad } \mathbf{v}, \quad (5)$$

$$\mathbf{F} = \text{Grad } \boldsymbol{\chi}, \quad (6)$$

$$\boldsymbol{\sigma} = \text{dev } \boldsymbol{\sigma} + \frac{1}{3} \text{tr}(\boldsymbol{\sigma}) \mathbf{I}. \quad (7)$$

In addition the jump-brackets and the energy norm, `\jump{u}` and `\enorm{u}`, are defined producing $\llbracket u \rrbracket$ 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.
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 any 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].

Table 1. Bold greek symbols.

small		small		capital	
command	result	command	result	command	result
<code>\balpha</code>	α	<code>\bmu</code>	μ	<code>\bGamma</code>	Γ
<code>\bbeta</code>	β	<code>\bnu</code>	ν	<code>\bDelta</code>	Δ
<code>\bgamma</code>	γ	<code>\bxi</code>	ξ	<code>\bTheta</code>	Θ
<code>\bdelta</code>	δ	<code>\brho</code>	ρ	<code>\bLambda</code>	Λ
<code>\bepsilon</code>	ϵ	<code>\bsigma</code>	σ	<code>\bXi</code>	Ξ
<code>\bvepsilon</code>	ε	<code>\bttau</code>	τ	<code>\bPi</code>	Π
<code>\bzeta</code>	ζ	<code>\bphi</code>	ϕ	<code>\bSigma</code>	Σ
<code>\bet</code>	η	<code>\bvphi</code>	φ	<code>\bPhi</code>	Φ
<code>\btheta</code>	θ	<code>\bchi</code>	χ	<code>\bPsi</code>	Ψ
<code>\bkappa</code>	κ	<code>\bpsi</code>	ψ	<code>\bOmega</code>	Ω
<code>\blambda</code>	λ	<code>\bomega</code>	ω		

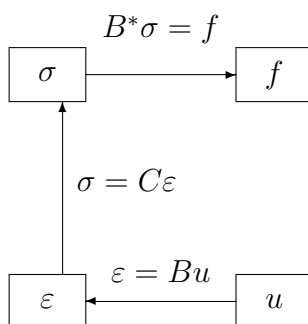


Figure 1. The dual structure of continuum mechanics.

Figures

The figures should be clear, readable and uniquely defined. In the online version of the journal color pictures are possible, but the author should take into account that the figures are readable also in the print version. 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

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