oststud — OST-Stud Style and Macros*

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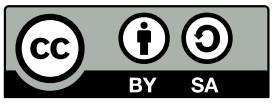
Contents

License



1 Purpose of this Package

This package is made for the OST Studenten organization to provide an easy to use interface that gives a more consistent look and feel for the works produced by its the members. This package is the successor after the fusion of the old `hsrstud` package.

2 Package Options

`dontrenew` Do not renew existing LaTeX commands and environments. This is useful when the package is loaded on a document that is already partially written.

`textvecdiff` Disables the "Nabla" or "Del" notation for vector derivatives. Instead the symbols $\boldsymbol{\nabla}, \boldsymbol{\nabla}\cdot, \boldsymbol{\nabla}\times, \nabla^2, \boldsymbol{\nabla}^2$ are be replaced with grad, div, curl and div grad.

*This document corresponds to oststud v0.2, last revised 2022/11/22.

3 Usage

First, it is to not that this packages sets some sane defaults to the `hyperref` and `listings` packages.

```
% Hello
%
```

`\dummyMacro` This macro does nothing. It is merely an example. If this were a real macro, you would put a paragraph here describing what the macro is supposed to do, what its mandatory and optional arguments are, and so forth.

`dummyEnv` (*env.*) This environment does nothing. It is merely an example. If this were a real environment, you would put a paragraph here describing what the environment is supposed to do, what its mandatory and optional arguments are, and so forth.

4 Implementation

4.1 Dependencies and Parse Options

First, we have the dependencies necessary for typesetting.

```
\RequirePackage{xcolor}
\RequirePackage{amsmath}
\RequirePackage{amssymb}
\RequirePackage{bm}
```

This package also sets sane defaults to the following packages.

```
\RequirePackage{hyperref}
\RequirePackage{listings}
```

Then we create the options for the package.

```
\SetupKeyvalOptions{
    family=ost,
    prefix=ost@
}
\DeclareBoolOption[false]{dontrenew}
\DeclareBoolOption[false]{textvecdiff}
\ProcessLocalKeyvalOptions*
```

4.2 Vectors and Vector Calculus

`\vec` In the physics used by electrical engineers it is common to use bold letters for vectors. If the `dontrenew` option is set a new macro `\bvec` (bold `\vec`) defines the bold vector notation. Otherwise the default vector notation with the tiny ugly arrow is saved in `\oldvec`.

```
\newcommand{\ost@vec}[1]{\mathbf{\bm{#1}}}
\ifost@dontrenew
    \newcommand{\bvec}[1]{\ost@vec{#1}}
\else
    \newcommand{\oldvec}[1]{\vec{#1}}
    \renewcommand{\vec}[1]{\ost@vec{#1}}
\fi
```

`\uvec` In vector calculus unit vectors are usually denoted by a hat.

```
\newcommand{\uvec}[1]{\vec{\hat{#1}}}
```

\dotp To differentiate them from \cdot and \times which are for scalars.
\crossp

```
\DeclareMathOperator{\dotp}{\boldsymbol\cdot}
\DeclareMathOperator{\crossp}{\boldsymbol\times}
```

\grad Gradient of a vector valued scalar functon.

```
\ifost@textvecdiff
    \DeclareMathOperator{\grad}{grad}
\else
    \DeclareMathOperator{\grad}{\vec{\nabla}}
\fi
```

\div Divergence operator. If the option dontrenew is a new macro \divg is defined. Otherwise \div is renamed to \divsymb.

```
\ifost@textvecdiff
    \DeclareMathOperator{\ost@div}{div}
\else
    \DeclareMathOperator{\ost@div}{\vec{\nabla}\dotp}
\fi
```

\curl Curl of a vector field.

```
\ifost@textvecdiff
    \DeclareMathOperator{\curl}{curl}
\else
    \DeclareMathOperator{\curl}{\vec{\nabla}\crossp}
\fi
```

\laplacian Laplacian of a scalar and vector field.
\vlaplacian

```
\ifost@textvecdiff
    \DeclareMathOperator{\laplacian}{\div\grad}
    \DeclareMathOperator{\vlaplacian}{\div\grad}
\else
    \DeclareMathOperator{\laplacian}{\nabla^2}
    \DeclareMathOperator{\vlaplacian}{\vec{\nabla}^2}
\fi
```

4.3 References

\skriptum Reference material in the skriptum (lecture notes) of the course.
\sref

```
\newcommand{\ost@skriptum}{\PackageWarning{No \noexpand\skriptum given}}
\newcommand{\skriptum}[1]{\gdef\ost@skriptum{#1}}
\newcommand{\sref}[1]{%
    \texttt{\textcolor{OSTBlackberry}{#1}}\nocite{\ost@skriptum}}
```

\textbook Reference material in the textbook of the course.
\bref

```
\newcommand{\ost@textbook}{\PackageWarning{No \noexpand\textbook given}}
\newcommand{\textbook}[1]{\gdef\ost@textbook{#1}}
\newcommand{\bref}[1]{%
    \texttt{\textcolor{OSTRaspberry}{#1}}\nocite{\ost@textbook}}
```

4.4 OST Colors

Define the colors according to the OST corporate design. The code was kindly stolen from H. Badertscher's `OSTColors.sty` [**?**]. First there are the "primary colors".

```
\definecolor{OSTBlack}{RGB}{25,25,25}
\definecolor{OSTBlackberry}{RGB}{140,25,95}
\definecolor{OSTRaspberry}{RGB}{215,40,100}
```

Then the "design colors".

```
\definecolor{OSTGray}{RGB}{198,198,198}
\definecolor{OSTDarkPurple}{RGB}{107,56,129}
\definecolor{OSTLightPurple}{RGB}{208,169,208}
\definecolor{OSTDarkGreen}{RGB}{0,126,107}
\definecolor{OSTLightGreen}{RGB}{167,213,194}
\definecolor{OSTDarkRed}{RGB}{195,46,21}
\definecolor{OSTLightRed}{RGB}{243,154,139}
\definecolor{OSTDarkBlue}{RGB}{0,115,176}
\definecolor{OSTLightBlue}{RGB}{95,191,237}
\definecolor{OSTDarkOrange}{RGB}{209,143,0}
\definecolor{OSTLightOrange}{RGB}{253,214,175}
```

And finally the base colors.

```
\definecolor{OSTPurple}{RGB}{149,96,164}
\definecolor{OSTGreen}{RGB}{29,175,142}
\definecolor{OSTRed}{RGB}{232,78,15}
\definecolor{OSTBlue}{RGB}{0,115,176}
\definecolor{OSTOrange}{RGB}{251,186,0}
```

4.5 Sane Defaults

First, set up `hyperref` to not look hideous.

```
\hypersetup{
    colorlinks=true,
    linkcolor=OSTBlack,
    citecolor=OSTBlackberry,
    filecolor=OSTBlack,
    urlcolor=OSTBlue,
}
```

Then create a listings style.

```
\lstdefinestyle{ost-base}{
    belowcaptionskip=\baselineskip,
    breaklines=true,
    frame=none,
    inputencoding=utf8,
    % margin
    xleftmargin=\parindent,
    % numbers
    numbers=left,
    numbersep=5pt,
    numberstyle=\ttfamily\footnotesize\color{OSTGray},
    % background
    backgroundcolor=\color{white},
    showstringspaces=false,
```

```
    % default language
    language=TeX,
    % break long lines, and show an arrow where the line was broken
    breaklines=true,
    postbreak=\mbox{\textcolor{OSTDarkBlue}{$\hookrightarrow$}\space},
    % font
    basicstyle=\ttfamily\small,
    identifierstyle=\color{OSTBlack},
    keywordstyle=\color{OSTBlue},
    commentstyle=\color{OSTGray},
    stringstyle=\color{OSTBlackberry},
}
```

Then we set this style to be default.

```
\lstset{style=ost-base, escapechar=`}
```

Change History

v0.1

General: Initial version 1

v0.2

General: Port features of `hsrstud` . 1

Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.