

stmmath package description

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v 20191103

Martin Rädcl

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These are the math definitions for `stm latex` . It is build upon the `amsmath` package.

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1. Commands

1.1. Operators

<code>\dev</code>	dev
<code>\dif</code>	d
<code>\divergenceoperator</code>	div
<code>\erf</code>	erf
<code>\sign</code>	sign
<code>\sph</code>	sph
<code>\spur</code>	Tr
<code>\Grad</code>	Grad
<code>\grad</code>	grad

1.2. Symbols

`\minus`
`\curveplus`
`\rightplus`
`\upplus`

$-$
 $\curvearrowright+$
 $\rightarrow+$
 $\uparrow+$

2. Environments

A. The code

A.1. stmmath.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This is a interface to all stm tikz definitions
% Based upon the amsmath package:
%   https://ctan.org/pkg/amsmath
%
% Usage
%   - Preamble:
%     - \usepackage{stmmath}
%
% Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
%              Initial draft
%
% Contact:    Martin Raedel, martin.raedel@dlr.de
%              DLR Composite Structures and Adaptive Systems
%
%              --/|--
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%              www.dlr.de/fa/en      || DLR
%
% Copyright (C) 2019-... DLR Composite Structures and
%   Adaptive Systems
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Content %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Declare that this style file requires at least LaTeX
%   version 2e.
\NeedsTeXFormat{LaTeX2e}

% Provide the name of your page, the date it was last updated
%   , and a comment about what it's used for
\ProvidesPackage{stmmath}[2019/10/27 STMs custom LaTeX math
  definitions]

% -----
% Package
```

```

% -----

% Load amsmath to defined math operators
\@ifpackageloaded{amsmath}{}{\RequirePackage{amsmath}}%
\@ifpackageloaded{amssymb}{}{\RequirePackage{amssymb}}%
\@ifpackageloaded{graphicx}{}{\RequirePackage{graphicx}}%

% -----
% Modules
% -----

% Operators
\@ifundefined{dev}{\DeclareMathOperator{\dev}{dev}}{}
\@ifundefined{divergenceoperator}{\DeclareMathOperator{\divergenceoperator}{div}}{}
\@ifundefined{erf}{\DeclareMathOperator{\erf}{erf}}{}
\@ifundefined{sign}{\DeclareMathOperator{\sign}{sign}}{}
\@ifundefined{sph}{\DeclareMathOperator{\sph}{sph}}{}
\@ifundefined{spur}{\DeclareMathOperator{\spur}{Tr}}{}
\@ifundefined{Grad}{\DeclareMathOperator{\Grad}{Grad}}{}%
    englisch gradient w.r.t material coordinates
\@ifundefined{grad}{\DeclareMathOperator{\grad}{grad}}{}%
    englisch gradient w.r.t spatial coordinates

% -----
% Newcommands
% -----

% Upright dif-symbol
\@ifundefined{dif}{\newcommand*\dif{\mathop{}\!\mathrm{d}}}{}}

% shorter minus sign
\@ifundefined{minus}{\newcommand{\minus}{\scalebox{0.75}[1.0]{\$-\$}}}{}}

% Symbols for static equilibrium conditions:
\newcommand*\curveplus{%
    \mathbin{\rotatebox[origin=c]{90}{\$ \m@th\curvearrowleft \$}+}
    %
}

\newcommand*\rightplus{%
    \mathpalette\@rightplus\relax%
}

```

```

\newcommand*\@rightplus[1]{%
  \mathbin{\vcenter{\hbox{$\m@th\overset{#1+}{\to}$}}}%
}

\newcommand*\upplus{%
  \mathbin{+\mathord{\uparrow}}%
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% That's it %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Finally, we'll use \endinput to indicate that LaTeX can
% stop reading this file. LaTeX will ignore anything after
% this line.
\endinput

```