

# Article Title

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## Abstract

The abstract serves both as a general introduction to the topic and as a brief, non-technical summary of the main results and their implications. Authors are advised to check the author instructions for the journal they are submitting to for word limits and if structural elements like subheadings, citations, or equations are permitted.

**Keywords:** keyword1, Keyword2, Keyword3, Keyword4

## 1 Introduction

The Introduction section, of referenced text [? ] expands on the background of the work (some overlap with the Abstract is acceptable). The introduction should not include subheadings.

Springer Nature does not impose a strict layout as standard however authors are advised to check the individual requirements for the journal they are planning to submit to as there may be journal-level preferences. When preparing your text please also be aware that some stylistic choices are not supported in full text XML (publication version), including coloured font. These will not be replicated in the typeset article if it is accepted.

## 2 Results

Sample body text. Sample body text.

### 3 This is an example for first level head—section head

#### 3.1 This is an example for second level head—subsection head

##### 3.1.1 This is an example for third level head—subsubsection head

Sample body text. Sample body text.

## 4 Equations

Equations in L<sup>A</sup>T<sub>E</sub>X can either be inline or on-a-line by itself (“display equations”). For inline equations use the  $\$...$$  commands. E.g.: The equation  $H\psi = E\psi$  is written via the command  $\$H \backslash\psi = E \backslash\psi\$$ .

For display equations (with auto generated equation numbers) one can use the equation or align environments:

$$\|\tilde{X}(k)\|^2 \leq \frac{\sum_{i=1}^p \|\tilde{Y}_i(k)\|^2 + \sum_{j=1}^q \|\tilde{Z}_j(k)\|^2}{p+q}. \quad (1)$$

where,

$$\begin{aligned} D_\mu &= \partial_\mu - ig \frac{\lambda^a}{2} A_\mu^a \\ F_{\mu\nu}^a &= \partial_\mu A_\nu^a - \partial_\nu A_\mu^a + gf^{abc} A_\mu^b A_\nu^a \end{aligned} \quad (2)$$

Notice the use of `\nonumber` in the align environment at the end of each line, except the last, so as not to produce equation numbers on lines where no equation numbers are required. The `\label{}` command should only be used at the last line of an align environment where `\nonumber` is not used.

$$Y_\infty = \left( \frac{m}{\text{GeV}} \right)^{-3} \left[ 1 + \frac{3 \ln(m/\text{GeV})}{15} + \frac{\ln(c_2/5)}{15} \right] \quad (3)$$

The class file also supports the use of `\mathbb{R}`, `\mathscr{R}` and `\mathcal{R}` commands. As such `\mathbb{R}`, `\mathscr{R}` and `\mathcal{R}` produces  $\mathbb{R}$ ,  $\mathscr{R}$  and  $\mathcal{R}$  respectively (refer Subsubsection ??).

## 5 Tables

Tables can be inserted via the normal table and tabular environment. To put footnotes inside tables you should use `\footnotetext[]{...}` tag. The footnote appears just below the table itself (refer Tables ?? and ??). For the corresponding footnotemark use `\footnotemark[...]`

**Table 1** Caption text

Column 1	Column 2	Column 3	Column 4
row 1	data 1	data 2	data 3
row 2	data 4	data 5 <sup>1</sup>	data 6
row 3	data 7	data 8	data 9 <sup>2</sup>

Source: This is an example of table footnote. This is an example of table footnote.

<sup>1</sup>Example for a first table footnote. This is an example of table footnote.

<sup>2</sup>Example for a second table footnote. This is an example of table footnote.

The input format for the above table is as follows:

```
\begin{table}[<placement-specifier>]
\caption{<table-caption>} \label{<table-label>} %
\begin{tabular}{@{}llll@{}}
\toprule
Column 1 & Column 2 & Column 3 & Column 4 \\
\midrule
row 1 & data 1 & data 2 & data 3 \\
row 2 & data 4 & data 5\footnotemark[1] & data 6 \\
row 3 & data 7 & data 8 & data 9\footnotemark[2] \\
\botrule
\end{tabular}
\footnotetext{Source: This is an example of table footnote.}
This is an example of table footnote.}
\footnotetext[1]{Example for a first table footnote.}
This is an example of table footnote.}
\footnotetext[2]{Example for a second table footnote.}
This is an example of table footnote.}
\end{table}
```

In case of double column layout, tables which do not fit in single column width should be set to full text width. For this, you need to use `\begin{table*} ...`