

## Addressing Issues Regarding MS Word Equation Editor and the Equation Tool

Owing to security concerns, Microsoft completely banned the use of Equation Editor 3.0 at the end of last year. Therefore, creating equations in Microsoft Office (MS Word) now requires the use of the new “Equation Tool” introduced in Office 2007. However, several issues are known to exist in this Equation Tool, such as the inability to use the same font for both the equations and the main text of the document. The following sections show an approach that helps to avoid such issues by changing the default font for equations to “Latin Modern Math,” an approach that addresses the reduced size of symbols such as an integral symbol inserted in the main text, and an approach that introduces the Equation Editor for cases that use Microsoft Office versions older than Office 2007. These approaches are merely a recommendation, and the author of this document will not be held responsible in case any damage occurs.

### 1. Changing the default font of the “Equation Tool”

**(1) Download the alternative font “Latin Modern Math” for equations from the following link:**

<http://www.ctan.org/tex-archive/fonts/lm-math/opentype>

**(2) Install the downloaded font**

Right click on “latinmodern-math.otf” and select “install.” Latin Modern Math font is now available for use.

**(3) Change the settings to enable the use of “Latin Modern Math” font within the Equation Tool**

After switching to the Equation Tool mode, click on the part indicated by the red circle in figure 1 and you can view the Equation Options screen. Here, change the default font for equations to the previously downloaded font “Latin Modern Math” font (figure 2).



Fig. 1. Display screen for the Equation Tool

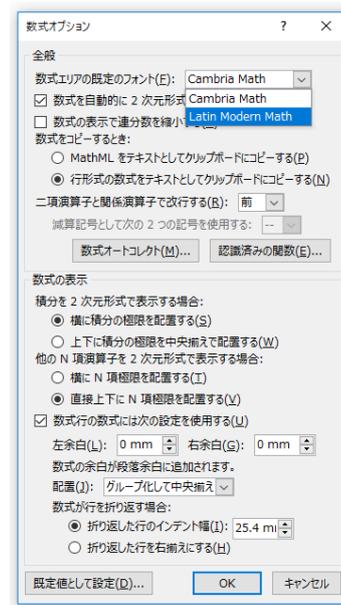


Fig. 2. “Options for equations” screen

The font within the Equation Tool is now changed to “Latin Modern Math” as shown below.

$$I = \int_a^b (x^2 + y^2) dx$$

#### (4) Install the equation font to be used in the main text

Because the aforementioned Latin Modern Math font is a LaTeX-interchangeable font set for equation processing and display software, the Bakoma font is required to be installed for use in the main text for LaTeX. This font can be downloaded from websites such as the following:

<https://ctan.org/tex-archive/fonts/cm/ps-type1/bakoma/otf/>

<ftp://akagi.ms.u-tokyo.ac.jp>

For now, cmr10, cmb10, cmbx10, cmmi10, cmmib10, cmti10, cmmib10, and cmsl10 will be sufficient.

Let’s change the equation font within the main text. For example,  $x$ ,  $y$ , and  $z$  in  $x^2 + y^2 = z^2$  uses the font “cmmi10” and symbols such as commas, +, and = uses the font “cmr10.” Note that a different symbol is displayed if cmmi10 font is used for + and – symbols in the main text. The font cmr10 is suited for the upright (Roman) type font.

#### (5) When using other font sets

The aforementioned “Latin Modern Math” font is a LaTeX-style font that appears slightly thin and may look awkward to some users. Therefore, one could use “XITS Math” font in its place, a font closer to the Times font set found in MS Word. Download and install XITS Math

from the following link, and follow the same procedure described in section (3) to use the font without the Equation Tool.

XITS Math font: <https://ctan.org/tex-archive/fonts/xits/>

$$I = \int_a^b (x^2 + y^2) dx$$

This may appear more familiar because it is a font set that belongs to the Times family, but it actually has a small problem—it cannot be aligned completely with the font of the main text. The XITS Math font in the Equation Tool appears as follows:

*abcdefghijklmnopqrstvwxyz*

In contrast, when using the same font for which XITS Math font is used, the main text would appear as follows:

*abcdefghijklmnopqrstvwxyz*

Quite disappointingly, the design of the letters is slightly different (the reason for this is unknown). It seems that a different letter code is used for the Equation Tool than that used for the main text, and the software is designed such that the font used for the Equation Tool cannot be used in the main text.

## **2. Fewer issues with fewer integral and other symbols in the equations embedded in the main text**

Symbols such as an integral symbol appear smaller in the Equation Tool when embedding the equation into the main text of the document, e.g.  $\int_a^b (x + y + z)^2 dx$ . It seems that this problem can only be addressed by using a table set.

A recommended approach is to insert a table in the body of the text and then write the equation as

$\int_a^b (x + y + z)^2 dx.$
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Delete the border lines of the table afterward. While it may not be the best approach, no other workaround is known at this point.

## **3. Issues regarding Equation Editor for versions before Office 2007**

Equation Editor (ver. 3.0) installed in the versions before Office 2007 has been deleted owing to security concerns. Therefore, it can no longer be used. If you insist on using an older version of Microsoft Office for writing your thesis, MathType (paid) is the only option.

Another approach in this case is to use a trial version of MathType. Although a trial version of MathType becomes a “lite” version after 30 days and the number of available functions are reduced compared to the full version, one can still continue to use the lite version.

The Japan Society of Mechanical Engineers

URL for downloading MathType:

English version (trial) [http://www.wiris.com/en/equation\\_editor/microsoft](http://www.wiris.com/en/equation_editor/microsoft)

Japanese version (trial) <http://www.senko-corp.co.jp/software/mathtype/download.htm>

**※There are reports that the English version is less problematic, but this has not yet been verified.**

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