# MAKE YOUR TECHNICAL TEXT ACTIVE

## INTRODUCTION

*Do you mind that the mathematical notation in electronic study materials or your report is not searchable and that you cannot edit it or directly use it in computer algebra systems?*

During the last few years a number of new editing tools have arisen. They have been designed especially for publishing special technical and scientific texts on the internet. Their arrival has changed the situation in the publication of texts with special notations (mathematical, technical, chemical, etc.). The notation trapped in static figure format (HTML, TeX, common word processors) is replaced by an active searchable form similar to those we are used to when working with normal common text. This has happened due to the new developing MathML coding based on Extensible Markup Language (XML), which allows the user to tailor the coding to his or her needs. MathML can code the text simultaneously in two ways: by expressing two-dimensional layout schemata – the presentation markup (e.g. superscript, subscript, fraction or table), as well as by expressing the mathematical meaning – the content markup (e.g. apply, power, plus, divide or list, vector, matrix). It is also possible to bind MathML expressions to various other types of annotations using a semantics element.

## PUBLICON

### Characteristics

*Publicon* is a typical representative of the new wave in software editing. It works with an intuitive graphical interface, where nearly all elementary operations can be carried out using a point and click button system. It is devised to serve a wide community of people: students, teachers, technicians and researchers i.e. all who need to edit and publish technical or scientific documents which include typeset mathematical or chemical notation. *Publicon* is particularly suited to students writing reports, theses, dissertations, papers, etc.

The main benefit comes from including MathML coding with a user friendly interface. A common text, active fully searchable technical notation, data plots, tables, hyperlinks, notes and references may be edited very easily; moreover, the user can import various formats of graphics, animations and sounds. One of the most important attributes is the possibility for the

creation of a reference database. Database entries (author details, reference details) are guided by special dialogs so that all necessary information is recorded. These items can then be used independently on a style sheet with the required extension. Built-in templates, button palettes and different sheets styles make local text formatting and document structuring easy to use. Compared with word processors, however, advanced formatting (sheet customizing or generating one's own templates) can be a little more demanding.

*Publicon* was created primarily for web publishing. Several styles of sheet templates have been designed with respect to requirements for papers submitted in special scientific on-line web journals. Strict one column bounding guarantees problem-free export into markup languages with a uniform layout. After exporting into XML, HTML or LaTeX the document can be edited further, and can also be published directly on the internet or prepared for quality paper printing. The HTML format keeps CSS and is available even for Microsoft Word users, when the mathematical text is converted into metafile or EPS format.

## Publicon document format and structure

The *Publicon* document is called *notebook* and has the extension ".*nb*". It was created by Wolfram Research, Inc. with a structure very similar to *Mathematica* (Wolfram's CAS product) notebook. *Mathematica* users should consequently be familiar with it.

Main structure elements are called cells. Each cell has its own style which is predefined by the particular style sheet. Here, all attributes such as text font, size, colour, background, spacing, alignment, etc. are stored. They can be viewed by Option Inspector. The user can change them individually within the particular cell by local formatting; they can be changed globally by customizing the existing style or by defining the new one in the notebook's style sheet through advanced formatting. The cells can be grouped logically and collapsed so that only the first line of the group is visible. The document is thereby kept clear and easy to navigate. This is why it is strongly recommended to use specific cell styles to format the paper structure as title, author, section, subsection, etc. as well as to format the content e.g. text, equation, table, etc. This helps to keep the order in numbered items and also to provide the correct export to other formats.

Even though the interface language is English, any left-to-right oriented language can be used to compose the documents. For English, one can use spell checking.

*Publicon* can be installed in Windows, Linux, and Macintosh systems.

**The most valuable features**

- Easy mathematical typesetting for equations and formulas

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- Fonts for special characters and symbols

- Search capability for mathematical notation

- Intelligent line breaking

- Hot keys for frequent mathematical notation

- Palettes for applying templates, formatting, and mathematical notation

- Customizable style sheets to control every aspect of a document's appearance

- Automatic numbering of equations, graphics, section, and chapter headings

- Hyperlink templates for linking documents to each other or to the web

- Customizable interface palettes and buttons for entering frequently used expressions

- Specialized tools for entering end notes or citations and creating a bibliography

- Import and export of graphics and sounds in a variety of formats

- One-step conversion of documents to LATEX, HTML, or XML formats

- Platform-independence and portability (saved as ASCII text )

**References**

1. Mathematical Markup Language (MathML), [online]. http://www.w3.org/TR/MathML2/

2. Wolfram Publicon Documentation, [online]. http://documents.wolfram.com/publicon/