Web Glossaries the Wiki Way

by Kermit Murray

A wiki is a type of website that can be edited by visitors using only their web browser.[1] The name comes from the word "wiki-wiki" that means quick in the Hawaiian language and is an apt name for these sites that can be quickly and easily modified. Wikis are useful for collaborative document creation because the document viewing and editing are integrated on-line. In a typical wiki, a visitor to the website can edit a page by clicking on the appropriate link. The page content is edited in simple markup language and saved. The changes to the wiki are stored in a database on a webserver and are immediately visible to visitors; all of the pages on the wiki website are generated by the server using the information stored in the database. Because it is so easy to change a wiki website, a record of all changes is also stored in the database so that older versions of the site's pages can be restored.

The largest and most popular wiki is Wikipedia, a user-edited wiki encyclopedia.[2] In the summer of 2006, Wikipedia had nearly 5 million articles in more than 200 languages and was one of the top 20 most popular websites in the world. The Wikipedia site is open and any visitor can edit its content. The site is maintained by hundreds of volunteer users who oversee quality and consistency, moderate disputes, and guard against abuse. A recent investigation by the journal *Nature* found that Wikipedia was nearly as accurate as the peer-reviewed *Encyclopedia Britannica*.[3] This success is offset somewhat by the ability of pranksters to disrupt the site and of the vocal and persistent to dominate discussion.[4]

A wiki website is an ideal format for content that consists of short entries on well-defined subjects—something found in encyclopedias and glossaries. Each entry is given its own page that can be linked to other pages and included in an overall list of terms. Pages can be tagged by one or more categories and alphabetization and sorting is automatic. Wiki websites are potentially useful tools for collaborative development of glossaries of nomenclature and terminology that are often encountered in IUPAC projects. In a traditional wiki, such as Wikipedia, visitors can edit content. However, a wiki website can be set up for editing by registered users or by a few trusted users. In the early stages of a project, the wiki can be open for editing by all users. As the project progresses, access is limited to task group members and, once the glossary is complete, it is web accessible and archived with no further work necessary. This article describes a wiki that was used in conjunction with a project aimed at updating the glossary of terms for mass spectrometry.

A Wiki Glossary of Mass Spectrometry Terms

The IUPAC project on Standard Definitions of Terms Relating to Mass Spectrometry, (# 2003-056-2-500) was initiated in 2003 with the goal of updating mass spectrometry nomenclature (see provisional recommendations, p. 19). Recommendations on mass spectrometry terms had not been made in more than 10 years and there was a need to obtain high visibility and wide access so that the final updated list of terms gained wide acceptance in the community. There was also a need for discussion and input from the mass spectrometry and greater scientific community. All of these needs can be met with a wiki website.

The mass spectrometry (MS) terms website runs on a low bandwidth commercial host. It has the easy-to-remember domain name <msterms.com>. The MS terms webserver runs with the Linux operating system[5] and the popular webserver program Apache.[6] The server details are not important other than for the fact that this configuration is compatible with many freely available wiki server programs. The MS terms website uses open-source Mediawiki software,[7] which was originally written for the Wikipedia website and is now maintained by the Wikimedia foundation and used for several of their projects. Mediawiki uses the programming language PHP to create webpages from data stored in a SQL database. Visitors to the website are not aware that the pages are created "on the fly."

The screenshot image on page 24 shows an example page from the Mass Spectrometry Terms Wiki for the term "electron ionization." The wiki software is designed for encyclopedia entries, thus each wiki page is called an "article." This article contains the proposed

definition of mass spectrometer, "The ionization of an atom or molecule by electrons that are typically accelerated to energies between 50 and 150 eV," with supporting links specific to the term and general navigation tools that appear on each wiki page. All page content aside from the definition and the links are generated automatically and are the same for each page. The left side bar can be customized with links to other pages on the wiki and to outside sites, such as the IUPAC website. The

<www.msterms.com/wiki/index.php?title=Electron_Ionization>

bottom of the page has copyright information and statistics and at the upper right of the page, a link for logging in the site. The top of the page has clickable tabs for the article (shown), discussion related to the article, editing the article, and the editing history of the article. Under the "History" tab, all prior versions of the article can be viewed and compared with each other or with the current version. Any previous version can be restored. The article can also be edited through the edit tag, which gives access to the material in the page below the words mass spectrometer.

Editing a wiki requires the use of a simple markup language that is similar to the hypertext markup language (HTML) used for most web pages. Examples of wiki syntax are given in table 1 (note that some syntax is specific to Mediawiki). Like HTML, wiki markup is set up to make hierarchical outlines, lists, and links to other documents. The feature that sets it apart from typical web page markup is the ease of article-to-article links. In wiki markup, a link to an article is indicated by the article name within double square brackets. For example, in the electron ionization definition, the words "electron impact" are set in doubled brackets when shown in the edit window, and are rendered as a link to the electron impact article within the wiki. If the article does not exist, clicking the link leads the visitor to the edit page for the new article. Wikis are set up to create and link articles quickly.

Table 1: Wiki Syntax Examples

Format	Hypertext Markup	Wiki Markup
Bold	`<b>This text bold</b>`	`'''This text bold'''`
Heading Level 1	`<h1>Level 1</h1>`	`=Level 1=`
Heading Level 2	`<h2>Level 1</h2>`	`==Level 2==`

List	`<ul>`
	`<li>Item 1`
	`<li>Item 2`
	`<li>Item 3`
	`</ul>`
		`*Item 1`
		`*Item 2`
		`*Item 3`

Linking	`<a href=http://www.iupac.org/>IUPAC</a>`	`[http://www.iupac.org/ IUPAC]`
Direct Linking	`No equivalent`	`[[Mass spectrometry terms]]`

Internet Connection

Some specific elements were developed for the mass spectrometry wiki. The blue banner box is a template that generates the same messages for each term and definition. Orange Book[8] and Gold Book[9] entries are included on the appropriate pages so that original and revised terms can be compared. External links to glossary entries and other information are also included on many pages.

Outlook

The Mass Spectrometry Terms Wiki has been highly successful and receives more than 5 000 page requests per day. Many of the glossary terms are top hits on popular search engine pages, making the site accessible to not only scientists but also to students and others in the general public. Much of the popular discussion of Wiki websites focuses on the relative utility of the open Wikipedia website compared to traditional encyclopedias. What is often forgotten is the fact that Wiki are useful and, true to their name, a fast and easy way to create websites. A Wiki can be open or closed to general editing, depending on the server configuration. The IUPAC website currently has hundreds of webpages devoted to glossaries, nomenclature, and other recommendations that could

benefit from formatting in the Wiki way. Projects that are being developed and are accepting comments can be open to allow broad and general input. Once public comments are closed, the wiki can be limited to access to all but task group members and, when the final recommendations are made, the site can be closed and maintained as an archive.

References
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