Development of the Plone Website for Computational Materials Science Group

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Abstract

Nanoscience and nanotechnology are becoming major themes for the 21st century. As technology grows, computer scientists are continuously forming methods to combine technology to science in the most efficient and effective way. The Center for Nanophase Materials Sciences (CNMS) at the Oak Ridge National Laboratory has set this as a focus of their research. The project goal is to build a website using the Plone content management system to reduce the complexity of sharing program information. The website will be global and restricted only to nanoscience teams to obtain and transfer research information quickly to others. To achieve this goal, the HTML file must be manipulated through text editors and Python programming language.

Fig 1. Zope Management Interface

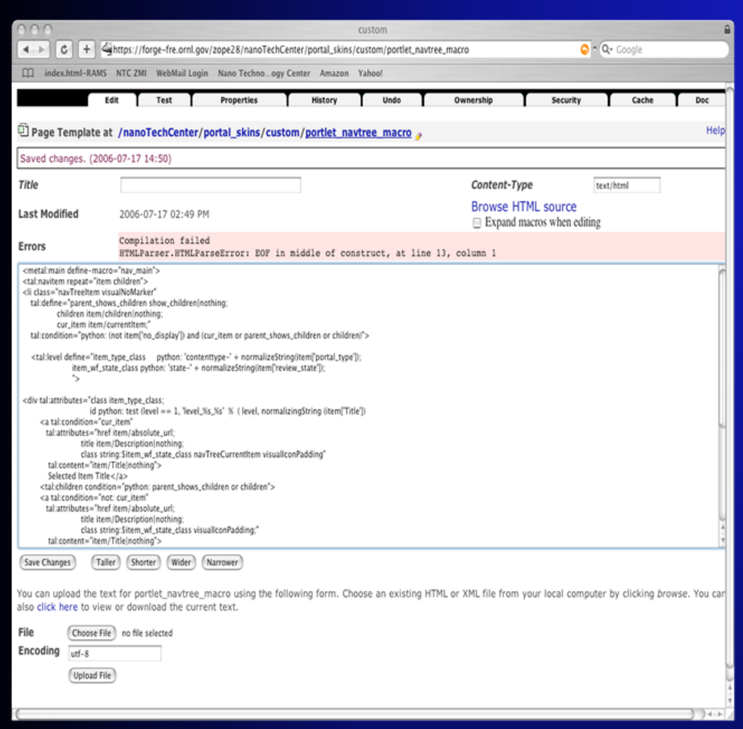

Fig 2. Coding within the ZMI

Goals

- Using Plone Content Management System
- Reducing manual research
- Producing "automated management of research through content management system
- Transferring research information quickly through global but restricted website

Plone Content Management System

- Web-based software application
- Organizes web page content
- Foundation of Zope application server
- Produced through Zope Management Interface
- Two user roles: global and local

Zope Management Interface

- Server used for underlying architecture of Plone site
- ZMI acts as local host
- Domain name: https://forge-fre.ornl.gov

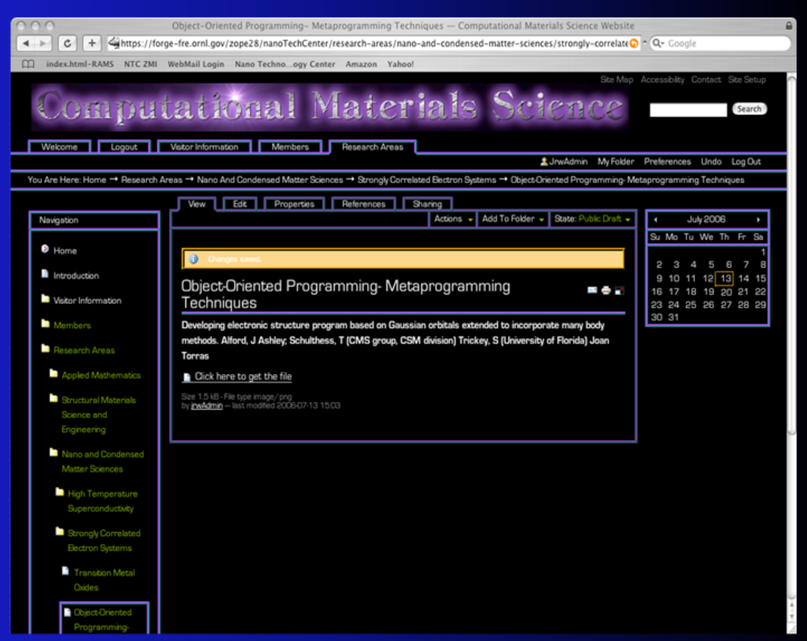

Fig 3. Logged-in screen with all folder contents

Results

- Website successfully connecting researchers quickly and efficiently
- Less e-mail traffic
- Improved organization of projects

Future Research

- Website will be the official Computational Materials Science Group website where researchers can efficiently exchange research information.

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