

Meta Data Driven Website Generation

Tools for Describing Projects

Robert Roggenbuck & Wolfram Sperber
Konrad-Zuse-Zentrum für Informationstechnik Berlin

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Bundesministerium
für Bildung
und Forschung

Robert Roggenbuck

Wolfram Sperber

Konrad-Zuse-Zentrum für Informationstechnik Berlin (ZIB)



Agenda

1. **About Math&Industry**
2. Generation of Websites
3. MIPMPers
4. MIPMGlossary



About Math&Industry - Aims

Basic Ideas

- publish applied mathematics at work
- make mathematics understandable
- meeting needs of different customers (science, industry / services, administration, broader public)
- be up to date
- be multi media based

This Leads to Math&Industry

- creation of project websites
- offer central services to give an easy access to the project information



About Math&Industry

History

- BMBF (German Ministry of education and Research) decides to support the field of applied mathematics
- started 1993 with the 1st funding period
- Math&Industry began 2001 (3rd period)
- 2004 the 4th period started
- more then 200 projects were funded



About Math&Industry

Structure

- central and local

Central Services

- the central portal <http://www.mathematik-21.de/>
assembles different search options
(besides information about the Math&Industry-
project itself):
 - project lists
 - full text search
 - overall glossary



About Math&Industry - The Portal

Future Services

- database with experts in mathematics
- software database
- database for general products
- publication search

To Enable all these Services, Structured Data is Needed

- Meta data -> RDF



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Generation of Websites

The Websites of the Projects Must be Structured

- > layout for easy access (navigation)
- > meta data for detailed retrieval

Development of the WebSiteMaker

- to minimise the effort to make a website
- to guarantee correct meta data

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Generation of Websites

The WebSiteMaker

- web-application
- generates the homepage of a project (general data)
- organises the creation of other pages
- website is stored at a server and can immediately accessed
- download of website is possible



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Generation of Websites - MIPM

Math&Industry Page Maker - Principle

- web-pages in XHTML and RDF/XML
- form based
- standalone modules
- 2 types:
 - „single page MIPM”
 - „deeper structured MIPM”

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Generation of Websites

MIPMs - Overview

- design principle:
 - „You can enter all relevant information, but You must enter only a minimum.”

MIPMText

- type „single page”
- for content which can not structured usefully
- big text field for content (allowing XHTML)
- minimal set of meta data

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Generation of Websites

MIPMLinks

- type „single page”
- list with commented links

MIPMPub

- type „deeper structured”
- all data to describe and classify publications can be entered

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Generation of Websites

MIPMSoftware

- similar to MIPMPub
- but software specific requirements are met (like version numbers, system requirements,...)
- different versions can be described

MIPMPers

- homepage maker
- (details later)



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Generation of Websites

MIPMOrg

- homepage maker for institutions / companies

MIPMEvents

- description of events like workshops, conferences, presentations, meetings
- part events can be described too



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Generation of Websites

MIPMGlossary

- for generation of term descriptions and their relations
- very different from all other MIPMs
- (details later)



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MIPMPers

General

- homepage maker
- derived from a Math-Net solution [MMM.Persons](#)
- but extended; e.g.:
 - project relevant address part
 - assignment of expertise fields



MIPMPers

Program Flow

1. start page
2. select
3. input form
4. view



Generation of XHTML and RDF/XML

- (almost) all entered data is visible in XHTML
- all data is represented in RDF
(and some more; e.g. creation / modification date)
- RDF s treated as a database for editing
- XHTML and RDF/XML are separated in 2 files, linked to each other

--> MIPMPers at Work

MIPMPers

Expert Database

- idea: people can search for mathematicians with expertise in special application fields
- the members are the experts (at least the project leaders)
- external experts can become part of db
- project members deliver their information through the homepages
- data of external experts must entered in a „common data base”

MIPMPers

Expert Database - Query

- query must ask this „common data base”
--> MIPMPers stores its data in RDF/XML and in this data base
- query interface
- example query result
- (general result structure)

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MIPMGlossary

General

- glossary is needed to understand the website
- remember: „meet the needs of different customers”
- = to break language barriers
- special: not only terms are described / defined, but also relations can be assigned
- additional: subjects from classification systems can be commented (MSC, PACS, CCS)

MIPMGlossary

Program Flow

1. start page (edit, view)
2. form (add, edit, delete)
3. view (sub glossaries)



MIPMGlossary

Sub glossaries

- term assignment to
 - application field (without specification)
 - scientific discipline
- resulting view structure: up to 3 pages
 - application area
 - scientific fields
 - mathematics

MIPMGlossary

Relations

- 2 types:
 - internal (same sub glossary)
 - external (other sub glossary)
- external are less relations possible
- 1 relation has often 2 labels, depending on the order of the related terms:
 - 'Physics' is broader then 'Magnetism'
 - 'Magnetism' is narrower then 'Physics'

MIPMGlossary

--> MIPMGlossary at Work

Overall Glossary

- resulting central service:
glossary of the terms of all projects



Meta data Driven Website Generation

Thank You!



Vocabulary List MIPMPers

DCMI Elements

- creator
- format
- identifier
- language
- rights
- subject
- title

DCMI Terms

- abstract
- bibliographicCitation
- created, modified
- extend
- IMT
- isPartOf, isVersionOf
- source

Vocabulary List MIPMGlossary

DCMI Elements

- relation
- subject

DCMI Terms

- created
- isPartOf
- isVersionOf
- modified

iwi-Properties

(Subproperties of DCMI Elements: relation)

- relevant
- similarTerm
- hasMetadataAbout
- hasAsMethod
- hasAsClassificationSystem