

Academic Information Portals

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Abstract

Information and communication are essential to scientific research. All academics would like to stay in touch with their worldwide community and therefore have one common starting point for their field and use the Internet for free. A structured information platform is required from where data can be retrieved in a particular way. In this paper we describe four portals for different subjects in detail and give an outlook of further developments.

Introduction

The development of the Internet and the widening spread of the WWW has influenced the history of academic publishing, too. [12] This started with eprint and preprint servers like arXive in natural science and continues with websites of research institutions and ends up with portals of all kind of information resources.

But what do we mean when we use the word 'portal'? The word is used in different contexts. In the following section we will cite two remarks and give detailed descriptions of existing subject portals.

'A portal is a service that functions as a mediator and as a collector of information for Internet users, enabling users to access a large quantity of resources, by means of a particular point of entrance to the Internet' [8]. Or from the other point of view: 'Academic information seekers desire: accessibility, timeliness, readability, relevance and authority' [6].

How can this be achieved? The information has to be sorted by content and grouped into categories like research institutes, publications, conferences, etc. All useful online resources are integrated (bottom-up) in this service. Over and above we will focus on free to use, no commercials or popups, interoperability and cooperation within the community. This includes copyright management as well as mirroring. Only a distributed service is maintainable with a low budget.

Portals

PhysNet¹ and Math-Net² serve this need in natural science for years. At the moment interdisciplinary portals like MareNet³ and the Telecom-Portal⁴ are being established and trying to solve special problems like common keywords and different classification schemes.

We are now going to have a look at these four portals in detail. Let us start with the longest online available / oldest one, which is PhysNet.

¹ <http://www.physnet.de/PhysNet/>

² <http://www.math-net.de/>

³ <http://www.marenet.de/MareNet/>

⁴ <http://userver.ftw.at/~kerstin/telecomportal/>



Fig.1: Screenshot of PhysNet

PhysNet [4], ‘the worldwide Physics Departments and Documents Network’ since 1995 is hosted by the Institute for Science Networking (ISN) in Oldenburg. The average usage is up to 700 hits per day for PhysNet.

It is free of charge and tries to link to all physics servers round the world. At the moment (3/2003) nearly 2200 institutions in 92 countries are listed. Since some years ago it is under the umbrella of the European Physical Society (EPS). Quality of service and authorization are thereby assured.

There is no central database but mirror sites in case of a server break down at the portal site. Four out of 12 mirrors are located at CEE.

Math-Net [1] an International Information and Communication System has also started as a project and is now hosted by the Konrad Zuse Institute (ZIB) in Berlin. It started 1997 with a relaunch of services and layout in 2001.

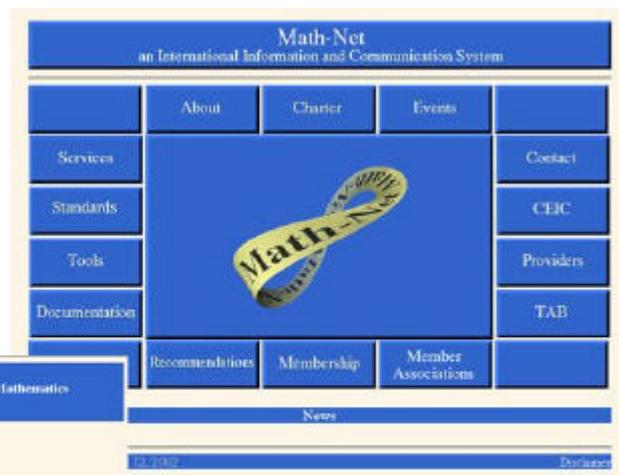


Fig.2: Screenshots of the Math-Net pages, Intro page (above), following pages (left)

The history of these two portals [fig.1, 2] is nearly identical. They started within their communities being maintained by physicists for physicists, mathematics for mathematicians respectively. They started as an initiative of a group of engaged people, grow and reach the critical mass of links after a year. Then they became part of financed research projects for some times and the prime part of the development has been done then. With promoting them at international fairs they became know to the public. So additional categories like job offers and education with learning and teaching material came up. Now they are also used by interested pupils and attract them for further studies.

In comparison mathematics and physics are thematically very similar to natural sciences. They both describe things in a very formal way, so publications consist of plain text, formula and graphics. In physics there may be additional experimental data and construction plans or software algorithms. Keyword and classification schemes are done by MSC and PACS. In doing research on similar topics, the communities often use only one scheme: One example: In mathematics a special construction leads

to the 'Hilbert space' in 'body theory'. This is used in physics, too in 'quantum mechanics' and 'field theory'.

Otherwise you notice the differences if you compare the two entry web pages in fig.1, 2: There are two expanded services with different interfaces optimized for specific users, PhysNet with 15 categories the same as Math-Net. At the first glance they look different by naming but you can nearly associate them 1:1 by content. This shows the general dilemma: Here both disciplines belong to the natural field of science but the Learned Societies uses their own classification leading to other retrieval methods. Now you can guess what will happen if you have several subjects in interdisciplinarity research.

Marine and earth science for example consists of biology, ecology, geology, atmospheric and climatic research, oceanology, mathematics, physics and all combinations of these. In telecommunications interdisciplinarity research groups with engineers, computer scientists, mathematicians and physicists work together. So the first problem is to locate all these institutions.



Fig.3: Screenshot of MareNet

MareNet [5], *the worldwide Network of Marine Research Institutions and Documents* has started in the year 2000 under the auspice of the German Society (DGM) and is hosted by the Institute for Science Networking (ISN) in Oldenburg.

At the moment (3/2003) 755 research institutes in 55 countries are registered. The daily page impressions are over 100.

The **Research Information Portal for Telecommunications** [12] is a research prototype run by the Telecommunications Research Center Vienna (ftw.) since 2001. It is online accessible and has already some page from outside. Altogether (3/2003) over 180 research institutes in 32 countries are listed at the moment (3/2003).



Fig.4: Screenshot of the Telecom-Portal

Layout and Categories

Figure 3 and 4 show screenshots of the entry pages of the two interdisciplinary portals. The layout goes with the functionality and doesn't chance within the pages. In the middle in the main frame you find the content of the page. At the left hand side there are the clickable categories as navigation bar. The Telecom-Portal which is still under construction has only double column and no graphic elements whereas MareNet has a third frame at the right side with news, promotions and other features. So MareNet looks more like PhysNet shown in fig.1. The arrangement of the thematic topic is at a clickable list at the left side with some points in the upper line. The splitting in this two parts and the total number of categories is given in tab.1. Compared to the 3 other portals mentioned above Math-Net fig.2 is different because it has special intro page and after that it switches to a double column layout for the rest of the sites.

But if we turn over to the categories by semantic we can compare the content closer to each other.

| PhysNet | Math-Net | MareNet | Telecom Portal |
|-----------------------------|--|-----------------------|---|
| PhysNet | - | MareNet | Home |
| PhysDep | Services: (searchable) | MareInst search | research institutes |
| PhysDoc | SIGMA | MareDoc search | documents: publications white papers learning material journals online archives other resources |
| Journals | MPRESS | MareJournals | |
| Education | PERSONA MATH Navigator Math Links Math Journals | - | |
| - | - | MareData search | |
| - | Standards | - | Definitions |
| - | - | - | Standards |
| PhysJobs | - | MareJobs | - |
| Conferences | Events | MareConf | Conferences |
| Links | - | MareLinks | Related |
| - | - | - | Legal |
| - | Providers | - | Provider |
| Services: MMM | - | Author Tools: MMM | - |
| Upload Form | Tools | Upload Form | - |
| crew | TAB | Crew | name/email |
| | CEIC | | |
| contribute | Charter | contribute: | |
| Member (Charter) Contact | Recommendations Membership Member Associations | Membership Charter | |
| about | About | about | about |
| | Documentation | | |
| statistics | - | statistics | - |
| New | News | New | - |
| 10+5 | 15 | 10+4+1 | 11+1 |

Tab.1: Comparison of the main Categories

Table 1 gives an overview of the adequate descriptions. The total number of categories is three times identical with 15 but other separation by PhysNet, Math-Net, MareNet und in the same dimension by 12 in the Telecom-Portal. The most important categories like institutes/department, documents, journals and education/learning material exit all over but the fine structure is different: In PhysNet this are 4 different categories with extra buttons. Math-Net summarizes them under services, in the Telecom-Portal journals and learning material are a subset of documents and MareNet has also extra buttons for three of them but doesn't offer any educational staff.

Collaboration possibilities like conferences/events provide all of them, as well as contact addresses and information about the portal. One specific is legal in the Telecom-Portal dealing with (de)regulation in the telecom act and linking to the ministries. The lack of technical service like an upload form or an online statistics are due to the prototype version of this youngest portal.

The use of this categorisation in this context needs intellectual input because of structural distinction. Website may have various layouts and they are located in different hierarchies at servers round the world. If you only have one sort of information like publications in different formats and the amount of 'trained' data is big enough you think of automatic classification like data mining as described in [2].

Other Academic Portals sorted by Provider

- Societies in the Learned Fields for Physics, Mathematics and Engineering at national and international level like the EPS, APS, IoP; EMIS, IMU; EIII, EII
- Libraries especially at universities offer web interfaces to their traditional catalogues and additional to their virtual services like **ViFaPhys**⁵, **ViFaTec**⁶
- Academic publishers offer portals like **scirus**⁷, *for scientific information only* from Elsevier or **SpringerLink**⁸, *the Visionary Information Service*

The Learned Fields are interested in their communities and use their portals for self-representation, too. Libraries offer a wider approach in relation to their traditional services. Publishers have of course commercial interests.

At the end some short remarks about the other subjects in natural science. In chemistry there are a lot of commercial databases described in [3] but no system linking to all departments. **Biofinder** is 'only' a big search engine for biology where you can't surf through.

Other academic portals like university portals are only for member of their university see CSU Charles Sturt University, Australia [9] or for the US as an example NCU North Carolina State University in Raleigh [11]. Here you have also the idea of cooperate identity and groupware aspects for distance education and online learning. Here you find another community and with their user needs and aspects served in a comfortable way.

User aspects become more and more important [7]. Documentation about research projects and furtherances are requested. A reporting and controlling system is set up at university level [10] in Norway. Bibliographies of researchers are of interest for the public, too. Further efforts will deal with concordance schemata as well as learning material.

Conclusions

Cooperation and local manpower is needed within the community to keep the services running. Very low standards (plain html) and defined metadata (DC) help to access it from all over the world. In Germany a discussion among all physics portal providers has just started for using the same data for different kind of portals tailored to academics, public, students or pupils.

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⁵ <http://vifaphys.tib.uni-hannover.de/index.php?lang=en&skin=gui&page=index.html>

⁶ <http://vifatec.tib.uni-hannover.de/index.php3?L=e>

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