QUIE^{2}T (247597)

DELIVERABLE D3.4.5

FINAL REPORT ON DISSEMINATION ACTIVITIES

The central task of QUIE^{2}T **WP3** was to increase the general visibility of QIPC related research in Europe, and assure a constant information flow within the community and beyond. This was achieved specifically via

- The setup of a comprehensive web site
- The setup of adequate means for efficient information exchange and dissemination
- An increase of the general public visibility of QIPC related research

The central piece of work delivered by this work package is the project web site, which served, and continues to serve as the main source of information and focal point to represent the project. Besides its representative function, it also acts as a major information exchange and communication platform for the community.
The second main objective of this work package is the outreach to other communities, in particular industries, the general public and other stake holders in the field.

One specific aim is targeted at the sustained awareness of the general public to ensure broader acceptance and understanding of QIPC related issues in particular, and science in general. The collected media contributions will also provide a helpful indicator for the excellence of European research in the context of international competition.

CONTENTS

T3.1 Setup an information exchange platform 3
T3.2 Development and maintenance of a comprehensive web portal 8
Content Management System 9
Structure of the QUROPE web site 10
Current Features 12
Web site Statistics 32
T3.3 Maintenance and update of existing QUROPE databases 34
T3.4 Information and promotion material 36
ICT 2010, Brussels 36
FET'11, Budapest 38
The QubitLab 40
QIPC'11, Zurich 40
Public talks 41
T3.5 Traveling professor 'Quantum Envoy' 42
T3.6 Scientific Exchange and Learning Center 47

T3.1 SETUP AN INFORMATION EXCHANGE PLATFORM

Work on this task has started already before the beginning of the project, an operational web site was in place on day one of the project. The information exchange platform is entirely web based and can be administered remotely by any authorized administrator. The main „out" channel to distribute information to the QIPC community is the QUROPE mailing list[1]. This list is populated with addresses of all registered users of the QUROPE site, any registered user is automatically subscribed to the list. At the time of this writing (January 2013), there were 421 users subscribed to the list. Last year, about 62 messages have been distributed via that channel, i.e. more than one per week.

To receive information from the QUROPE site there are several possible channels, the most convenient way, apart from joining the QUROPE mailing list, is to subscribe to one or several of the news feeds that are offered at the bottom of many relevant pages (e.g. for news[2] or jobs[3] announcements). Subscribing to any of the available news feeds will lead to an automatic notification for any update (addition or change) of the corresponding database. The use of the news feeds has been documented in the Frequently Asked Questions[4].

For internal discussions and confidential dissemination, some restricted discussion forums exist within certain groups. This concerns in particular any projects that are hosted at the QUROPE site, which have their own intranet area that is accessible only to project members.

[1] Hhttp://qurope.eu/content/qurope-mailing-list
[2] Hhttp://qurope.eu/db/news
[3] Hhttp://qurope.eu/db/jobs
[4] Hhttp://qurope.eu/faq

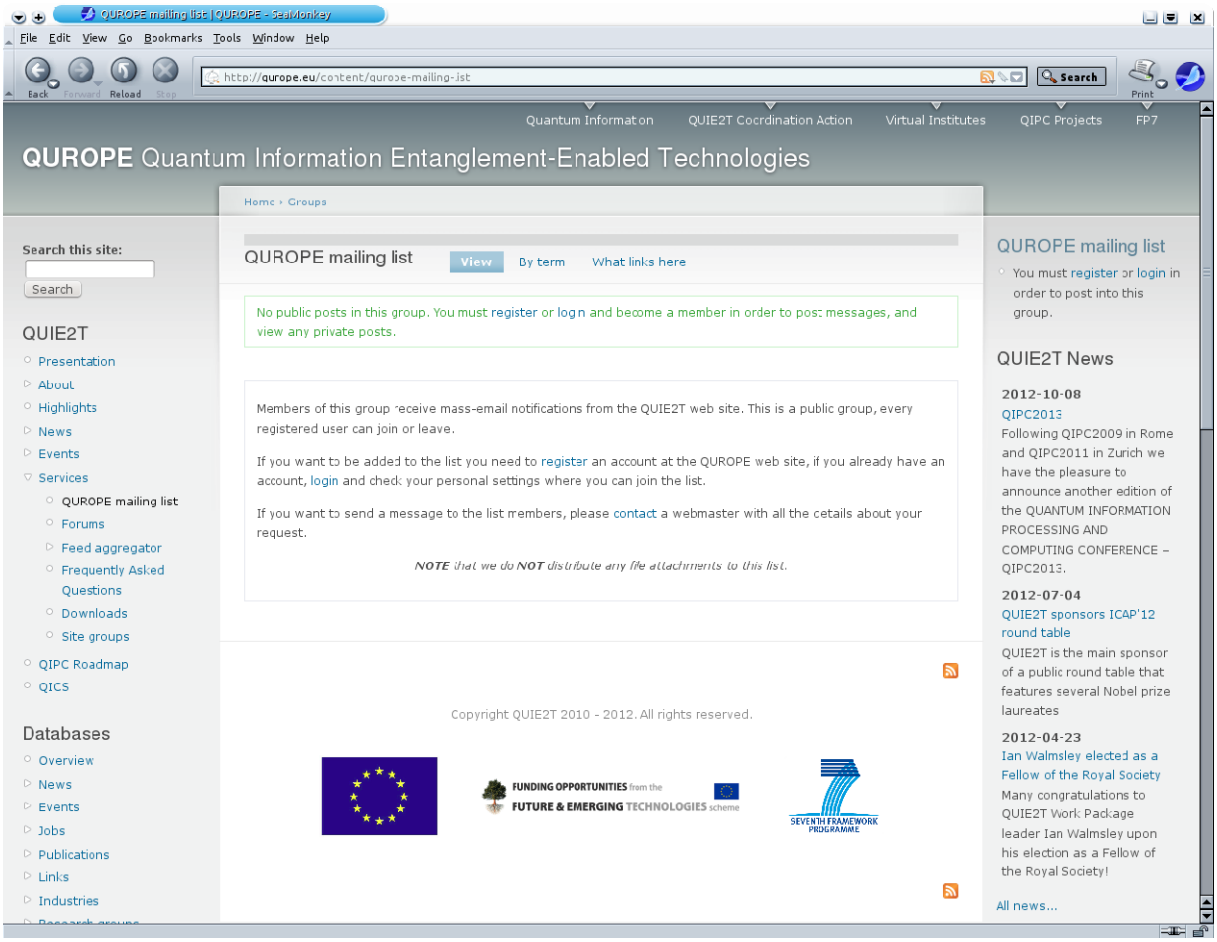


Fig. 1 The main page of the QUROPE mailing list.

[QUROPE] Petition to protect the EU research ...

Subject: [QUROPE] Petition to protect the EU research budget
From: admin@qurope.eu
Date: 10/24/2012 08:33 AM
To: lukas.theussl@savba.sk

Dear members of 'QUROPE mailing list',

The discussions at and around the next summit of the European Union heads of states and governments, which is scheduled for 22 and 23 November, will be decisive in determining the EU research budget for the next seven years. Several Member States are demanding severe cuts on the total EU budget and research will have to compete with other policy priorities.

This is a time when we, the scientific community, should act together and make our case to protect research funding, including that of the European Research Council (ERC), from cuts. Decisions will be prepared in discussions among politicians at the national level. All of us must look for opportunities to affect these decisions and send a strong signal to the Heads of State or Government.

An open letter signed by European Nobel laureates has been published in top European newspapers this week. The impact of this letter will be increased if it is followed by a mobilization of the national scientific communities.

I suggest we support these initiatives, for example, in the following ways:

* speak at events we may be attending to make the case for the ERC and the budget for Horizon2020
* use contacts that we or our colleagues may have in political parties or in the media to inform and mobilise our communities and others
* ask the leaders of any professional society to which we belong to bring this call to action to the attention of the society's members.

An online petition has been launched to keep the momentum going:

http://www.no-cuts-on-research.eu

I would like to ask you to sign it and to encourage your research group members and colleagues to do likewise. Note that in the past less than 30 000 scientists signed the largest petition for a scientific cause in Europe compared to the hundreds of thousands of signatures on petitions from other groups of society. We must do better than that.

-- This message was sent by an administrator in the 'QUROPE mailing list' group at the QUROPE web site. To visit this group, browse to http://qurope.eu/content/qurope-mailing-list.

--

This is an automatic message from the QUROPE web site. To manage your subscriptions, browse to http://qurope.eu/user/4/notifications.

1 of 1 12/06/2012 11:42 AM

Fig. 2 Faksimile of an announcement on the QUROPE mailing list.

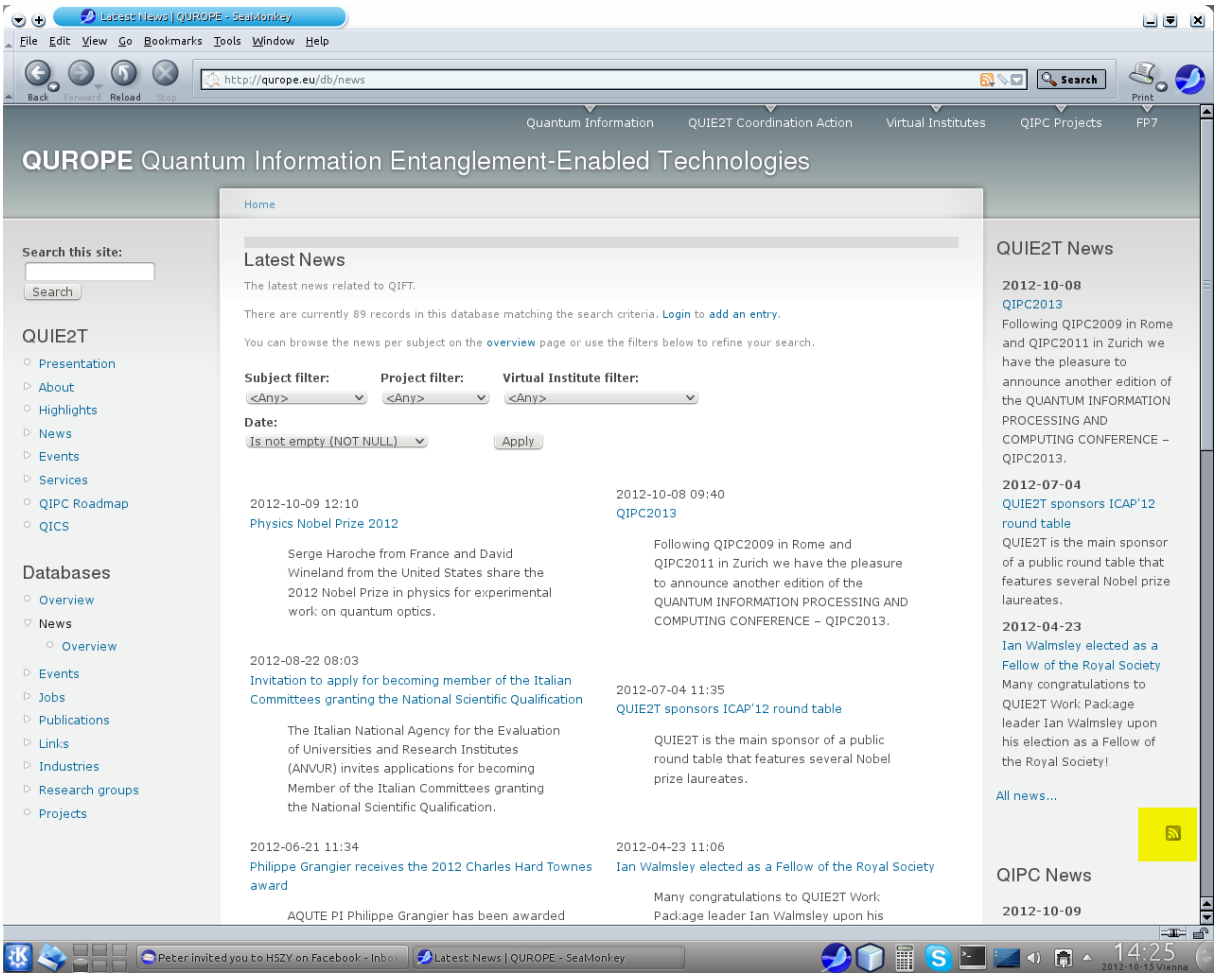


Fig. 3 Example of e feed icon, here for the QUIE^{2}T news.

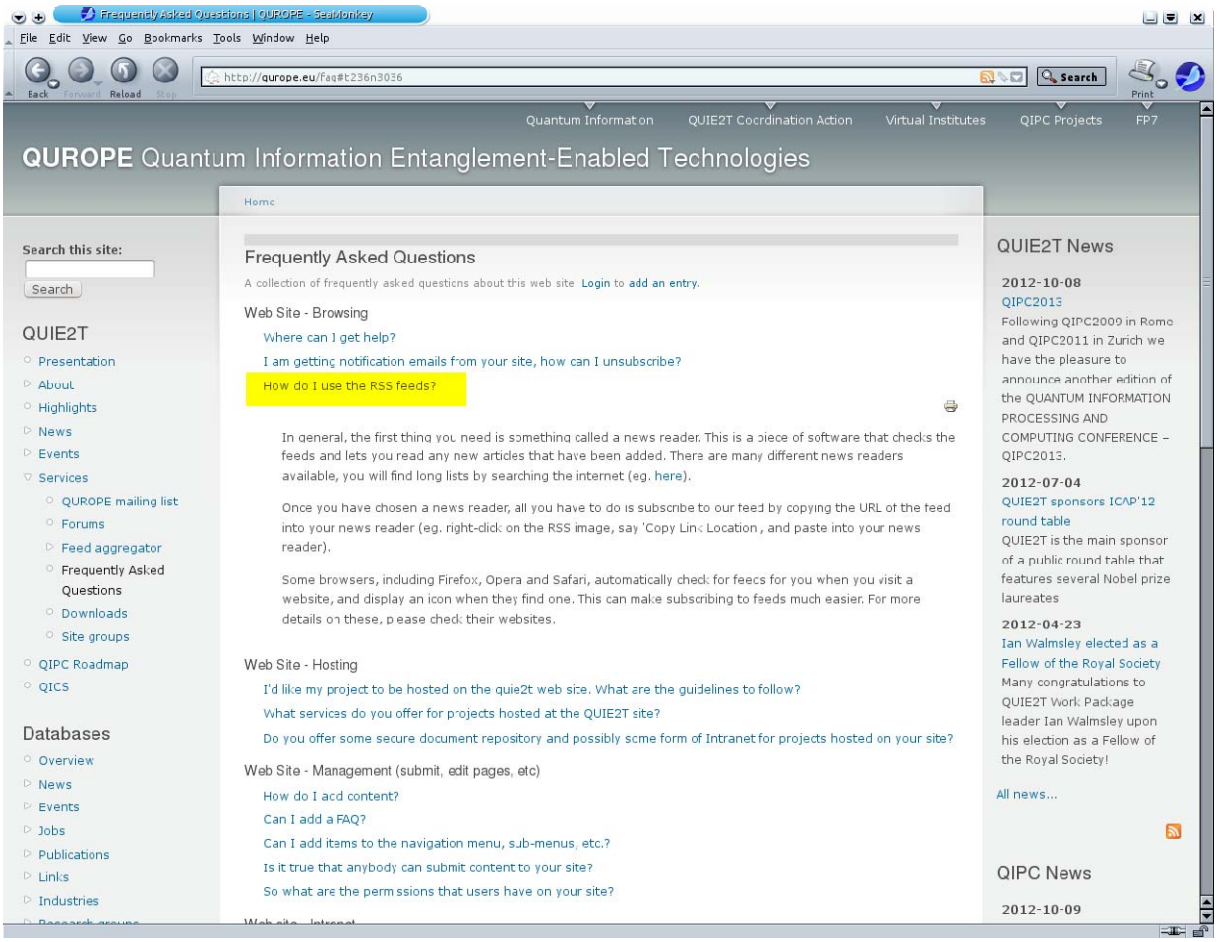


Fig. 4 Explanation of the RSS feed in the Frequently Asked Questions.

T3.2 Development and maintenance of a comprehensive web portal

As mentioned before, the web site was operational with the start of the project. It was decided early on to use a web-based Content Management System (CMS) that would allow administrative tasks to be carried out remotely by any authorized administrator. In addition, it allows the administrators to rely on a set of already implemented common features and tools, thus harnessing the power of the underlying Database Management System (DBMS) which greatly simplifies the tasks of maintaining a rich content web site.

The hosting has been offered by the Niels-Bohr Institute in Copenhagen, who agreed to continue the service following the successful hosting of the predecessor project QUROPE[5].

The main domain for the web site has been chosen deliberately to be

http://qurope.eu/

It is supposed to be an umbrella domain for several QIPC related subjects and projects.

The following sections include a general description of the web site, the current features and the planned future additions.

[5] Hhttp://www.qurope.net/H

CONTENT MANAGEMENT SYSTEM

The selected CMS for the web site is Drupal[6], an open source content management platform written in PHP. In the following we will briefly describe how it was selected and outline the main characteristics of the tool.

The decision to use Drupal was based on an informal evaluation of the existing open source tools suitable for this purpose. The main requirements for the tool were determined to be:

1. Open source license,
2. Wide adoption, preferably in the scientific community,
3. Active development with a large developer base,
4. Broad availability of plugins and extensions,
5. Using an open source DBMS, preferably MySQL,
6. Written in Java, PHP or Perl,
7. Availability of features to easily convey content from different remote sources.

The tools investigated were:

1. WebGUI (Perl, http://www.webgui.org/)
2. Drupal (PHP, http://drupal.org/)
3. Magnolia (Java, http://documentation.magnolia-cms.com/)
4. Joomla! (PHP, http://www.joomla.org)

The considerations which led to the decision were basically the following:

- It was decided to use a tool that is written in a programming language familiar to the people in charge of building the site. This excluded WebGUI for us.
- Joomla! And Magnolia, although of excellent quality and widely adopted, are too much focused on a particular layout structure to produce a general purpose portal and were limited in their capabilty of future extensions and flexibility.

In addition, the system administrators at the Niels-Bohr Institute, where the site was to be hosted, recommended Drupal based on their own experience, leading to Drupal as the tool of choice.

Drupal is a free and open-source content management system (CMS) and content management framework (CMF) written in PHP and distributed under the GNU General Public License. According to Wikipedia, it is used as a back-end system for at least 2.1% of all websites worldwide, ranging from personal blogs to corporate, political, and government sites including whitehouse.gov and data.gov.uk. It is also used for knowledge management and business collaboration.

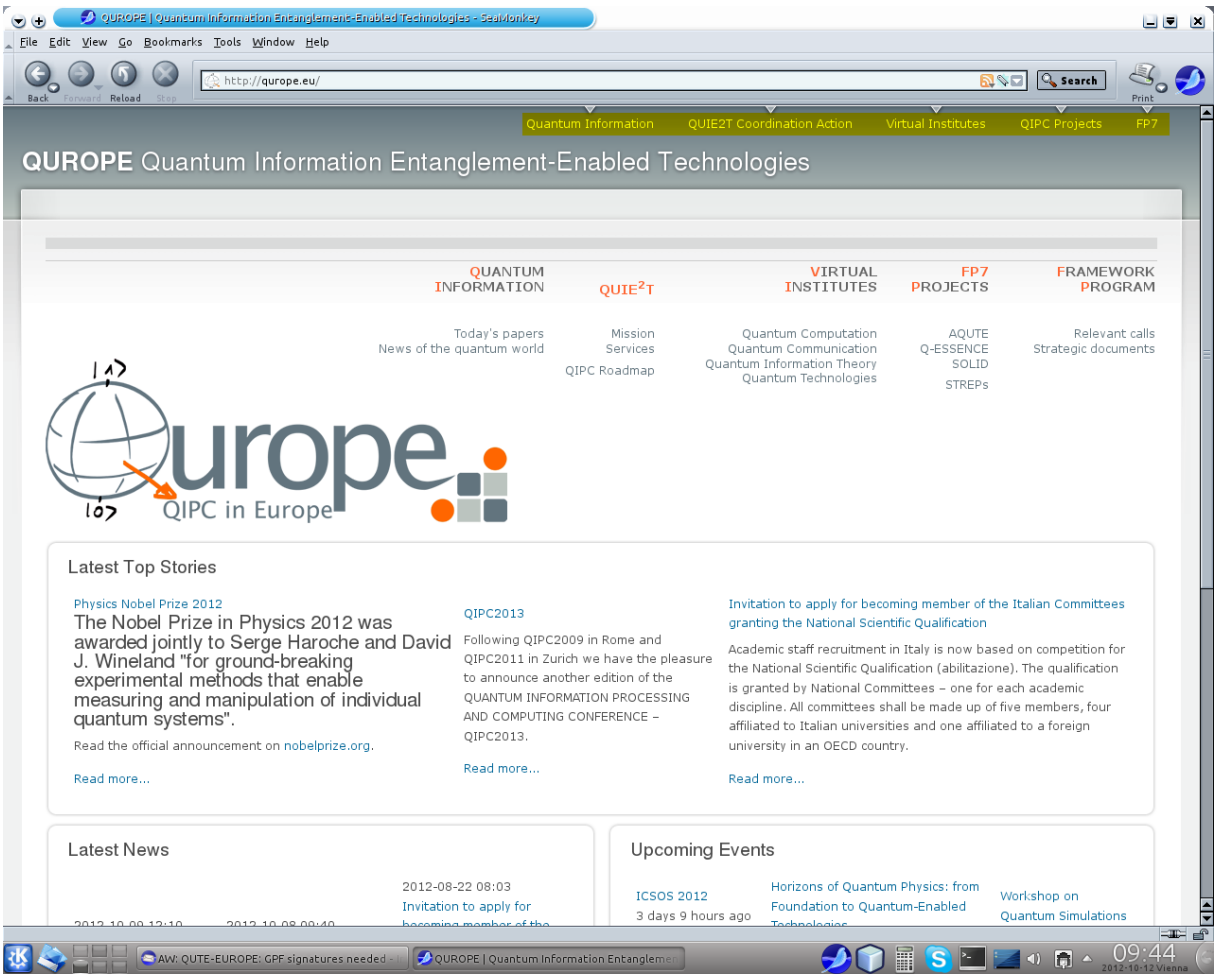
The standard release of Drupal, known as ‚Drupal core‘, contains basic features common to content management systems. These include user account registration and maintenance, menu management, RSS feeds, page layout customization, and system administration. The Drupal

[6] Hhttp://drupal.org/

core installation can be used as a brochureware website, a single- or multi-user blog, an Internet forum, or a community website providing for user-generated content.
As of September 2012, there are about 18,200 free community-contributed addons, known as ‚contrib modules', available to alter and extend Drupal's core capabilities and add new features or customize Drupal's behavior and appearance. Because of this plug-in extensibility and modular design, Drupal is sometimes described as a content management framework.

Although Drupal offers a sophisticated programming interface for developers, no programming skills are required for basic website installation and administration.

STRUCTURE OF THE QUROPE WEB SITE



As highlighted in the screenshot above, the main web portal is currently divided into five domains:

- Quantum Information[7]: contains general, also specialized, material about QIPC-related issues
- QUIE2T Coordination Action[8]: specific to the QUIE^{2}T CA that acts as a maintainer for the whole web portal
- Virtual Institutes[9]: contains material pertaining to the work of the four Virtual Institutes
- QIPC Projects[10]: the part of the web portal where other QIPC related projects may register
- FP7[11]: contains information about the EC funding schemes and the seventh framework in particular

These domains are accessible via the principal navigation menu on top of each page of the site.

In general, every page on the whole qurope.eu domain is divided into three main areas:

1. The navigation menu on the left. It contains sub-menus and links to specific pages. Its contents are specific to the current domain and context that is being browsed.
2. The main content box in the center. Any content is displayed in this area.
3. The information box on the right. It mainly contains the login area and some page-specific information, e.g. news boxes etc. Within the login area, there is also some account information and site documentation accessible from this box.

In addition to these content areas, there is a small header area, containing a 'breadcrumb'-like link hierarchy, indicating the current navigation position, and with the web site front page ('Home') as the top-level link; as well as a footer with permanent links to static pages ('Contact', ‚Credits' and ‚Disclaimer').

[7] Hhttp://qurope.eu/qipc
[8] Hhttp://qurope.eu/quie2t
[9] Hhttp://qurope.eu/vi
[10] Hhttp://qurope.eu/projects
[11] Hhttp://qurope.eu/fp7

CURRENT FEATURES

The web site currently offers the following features:

- An open registration service, any user can register and start submitting content to the site via the node submission page[12], however, in order to minimize the spam rate, we require people to login, i.e. anonymous submissions are not allowed. Registration is free and open to anyone, and can be accomplished quickly and easily by following the link below the *User login* block that is visible on bottom of the right column on every page of the site.

Once logged in, some detailed documentation and help is available for submitting contributions and working with the on-line editor (see the ‚Compose tips' link in the menu).

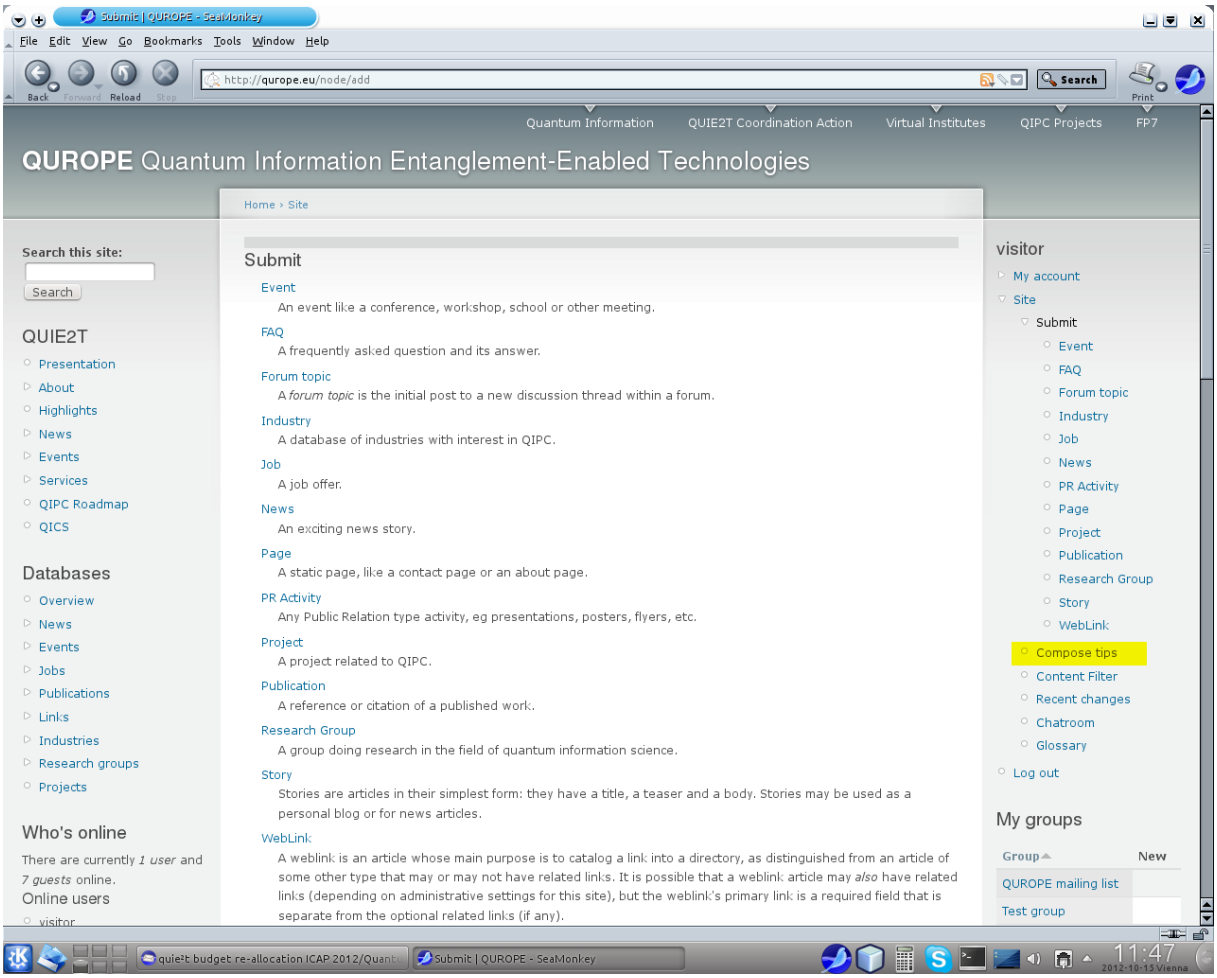


Fig. 5 The main page for data submission.

[12] Hhttp://qurope.eu/node/add

Apart from the main submission page, there is a link in the header of every database collection front page that goes directly to the data submission page for the corresponding data type. This is illustrated in Fig. 6 using as example the collection of QIPC projects[13].

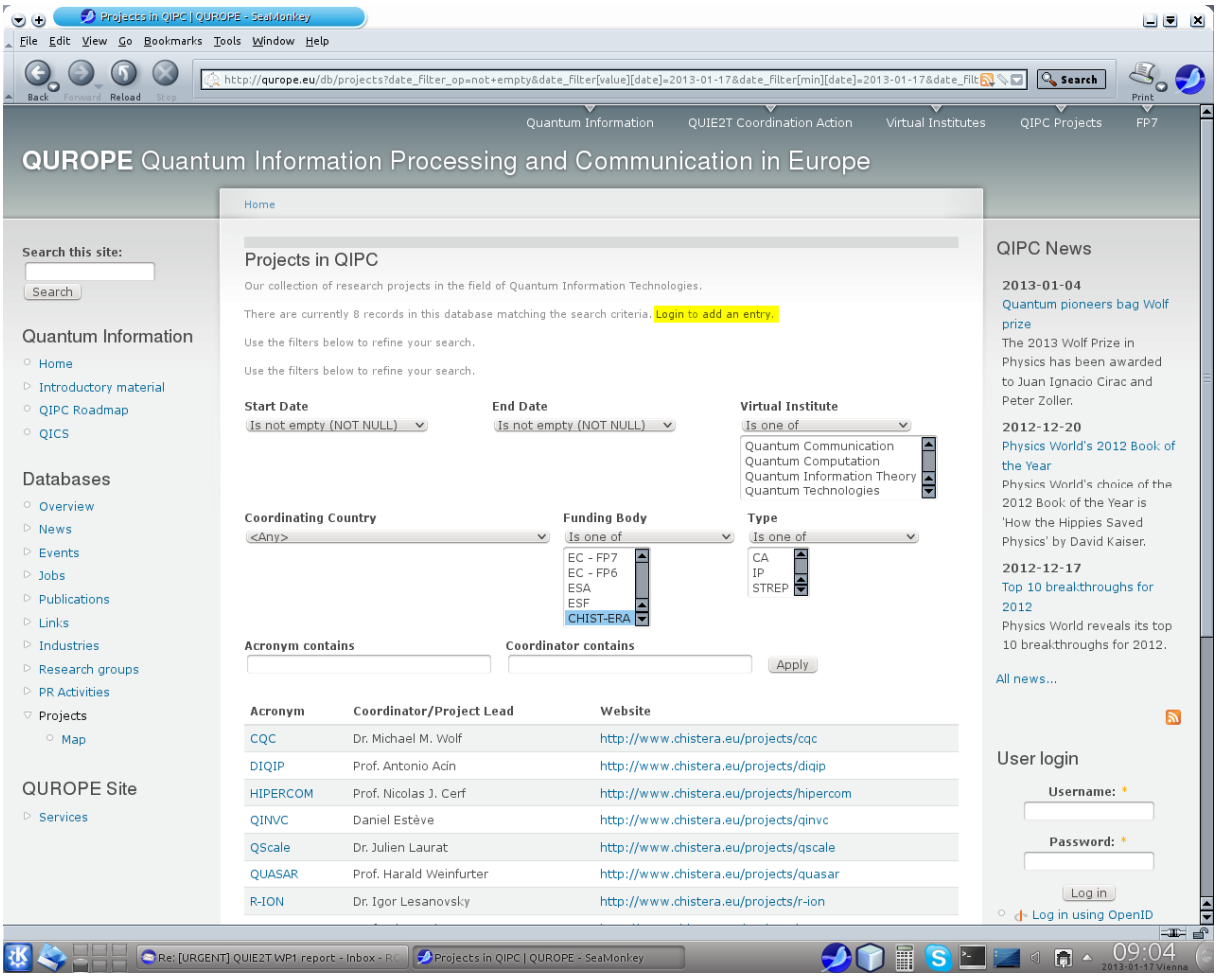


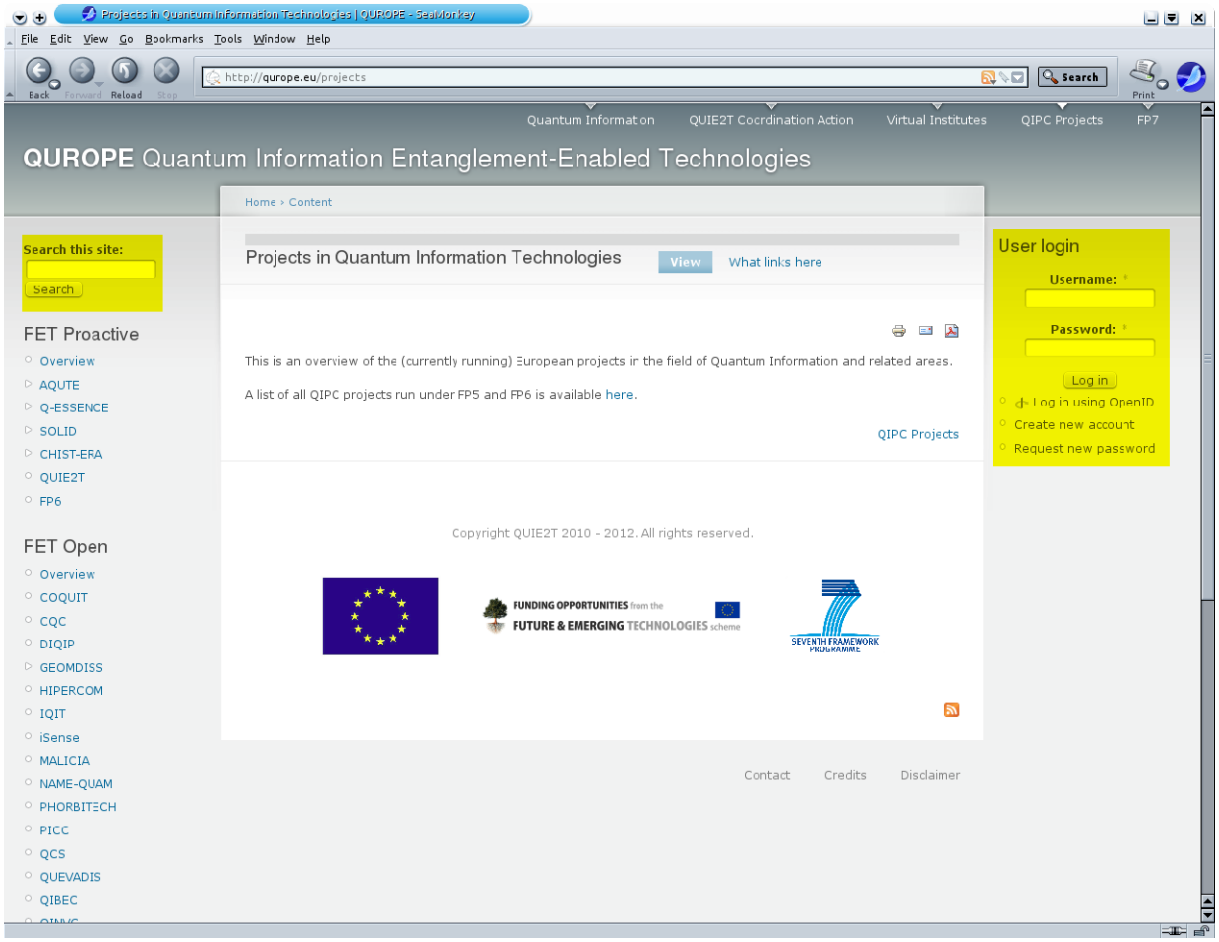
FIG. 6 EXAMPLE OF A LINK FROM THE DATABASE COLLECTION TO THE DATA SUBMISSION PAGE,

Different data types offer the choice of various attributes to be specified during submission, some of which are required (indicated by a red asterisk), others are optional. These attributes can be modified any time later by editing the node (i.e. the submitted data type), and are used for filtering and searching on the respective presentation pages.

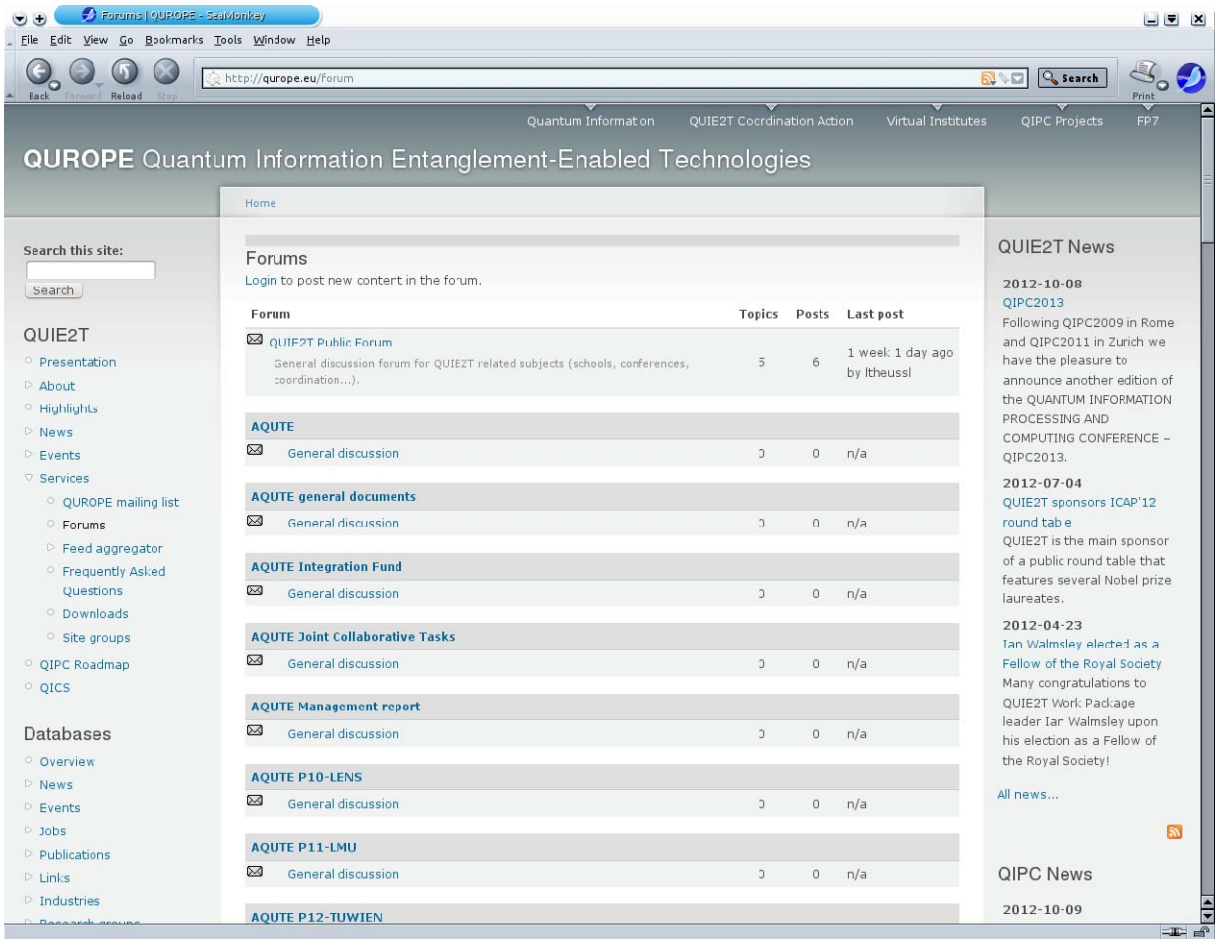
- A huge collection of relevant data bases[14], like news, events, jobs, publications, research groups, etc.
- Revision control for certain documents that are maintained on the site, in particular the QIPC Roadmap and the QICS classification scheme.

[13] Hhttp://qurope.eu/db/projectsH
[14] Hhttp://qurope.eu/db

- Search function

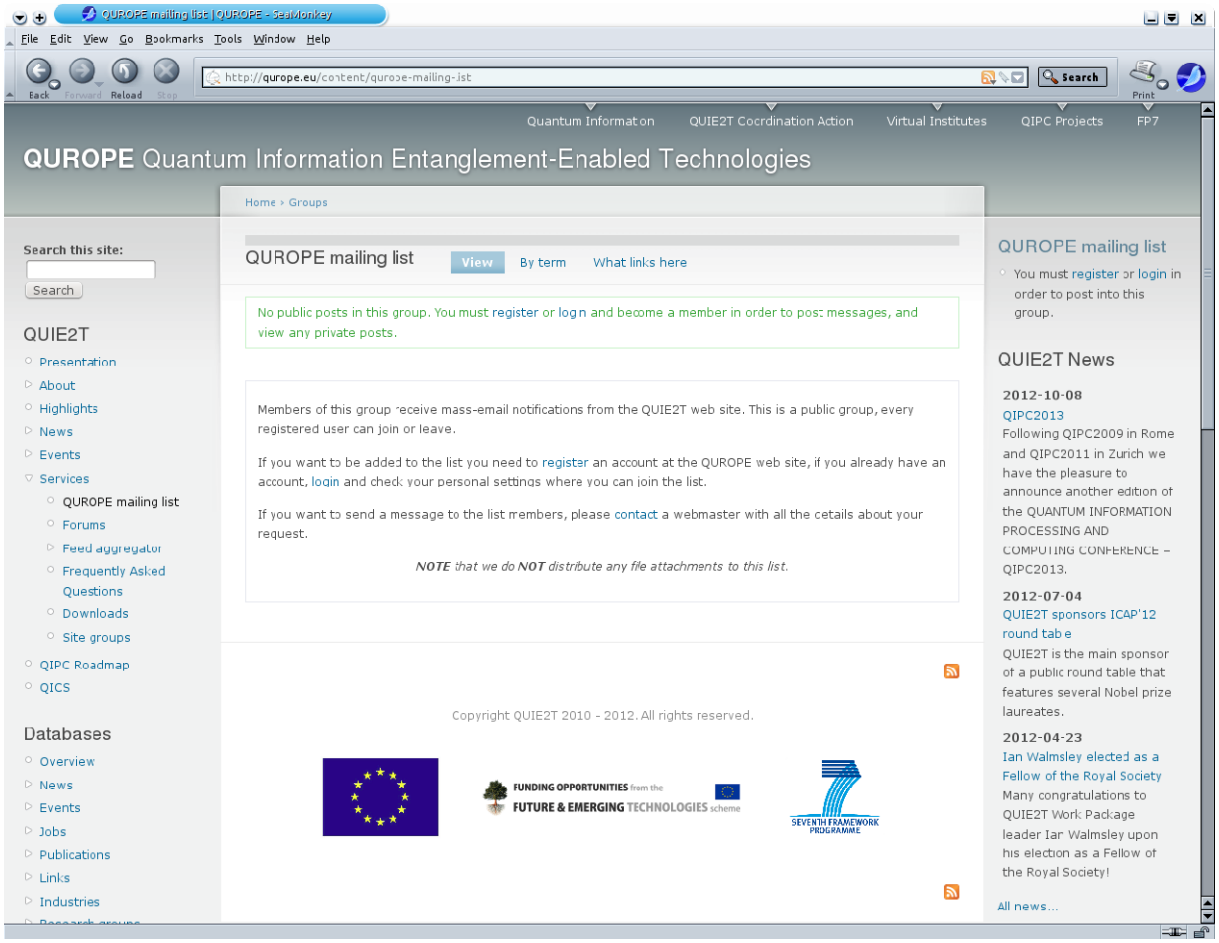


- Discussion forums[15], publicly available (only registered users can participate).



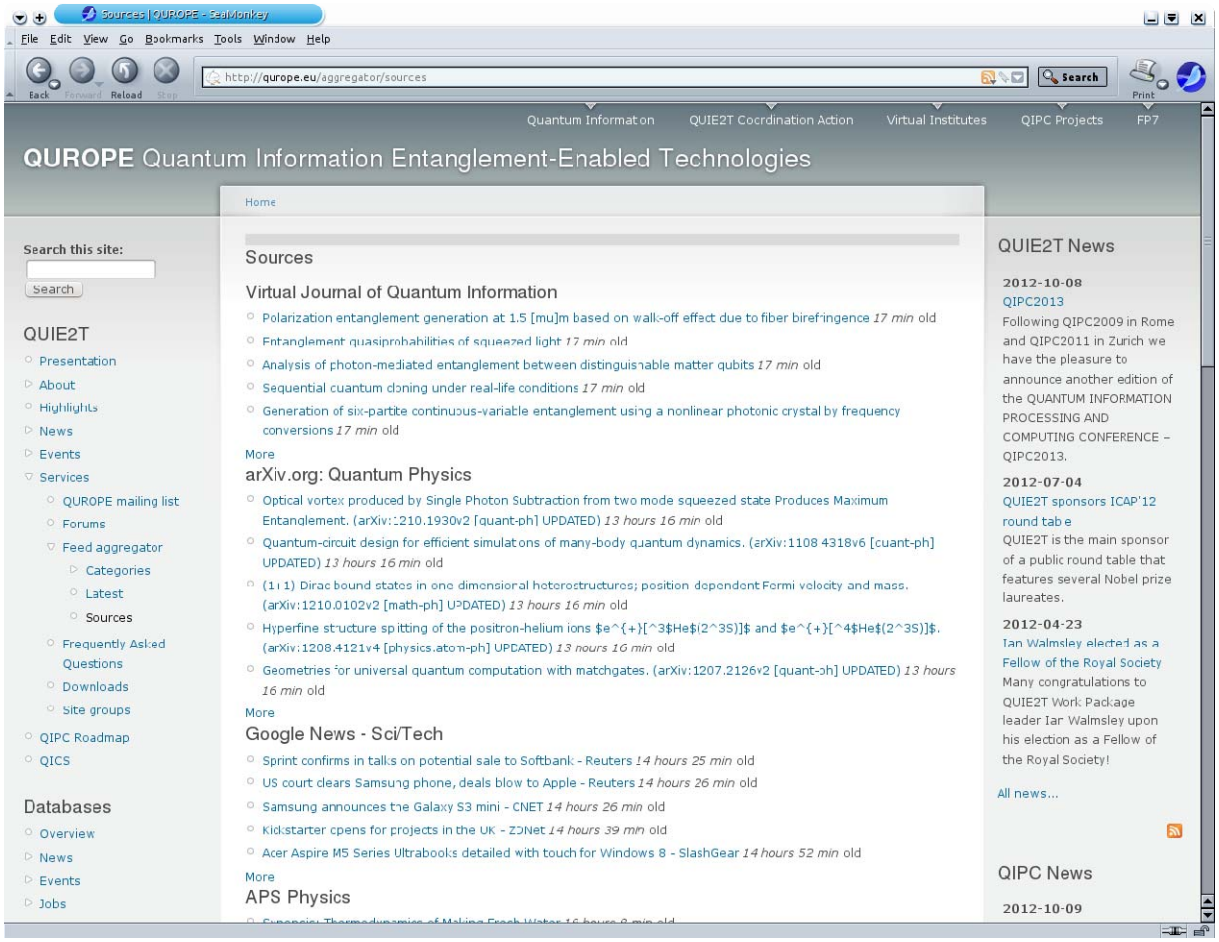
[15] Hhttp://qurope.eu/forum

- On-line maintenance of the QUROPE mailing list[16], any registered user is automatically subscribed to the list.



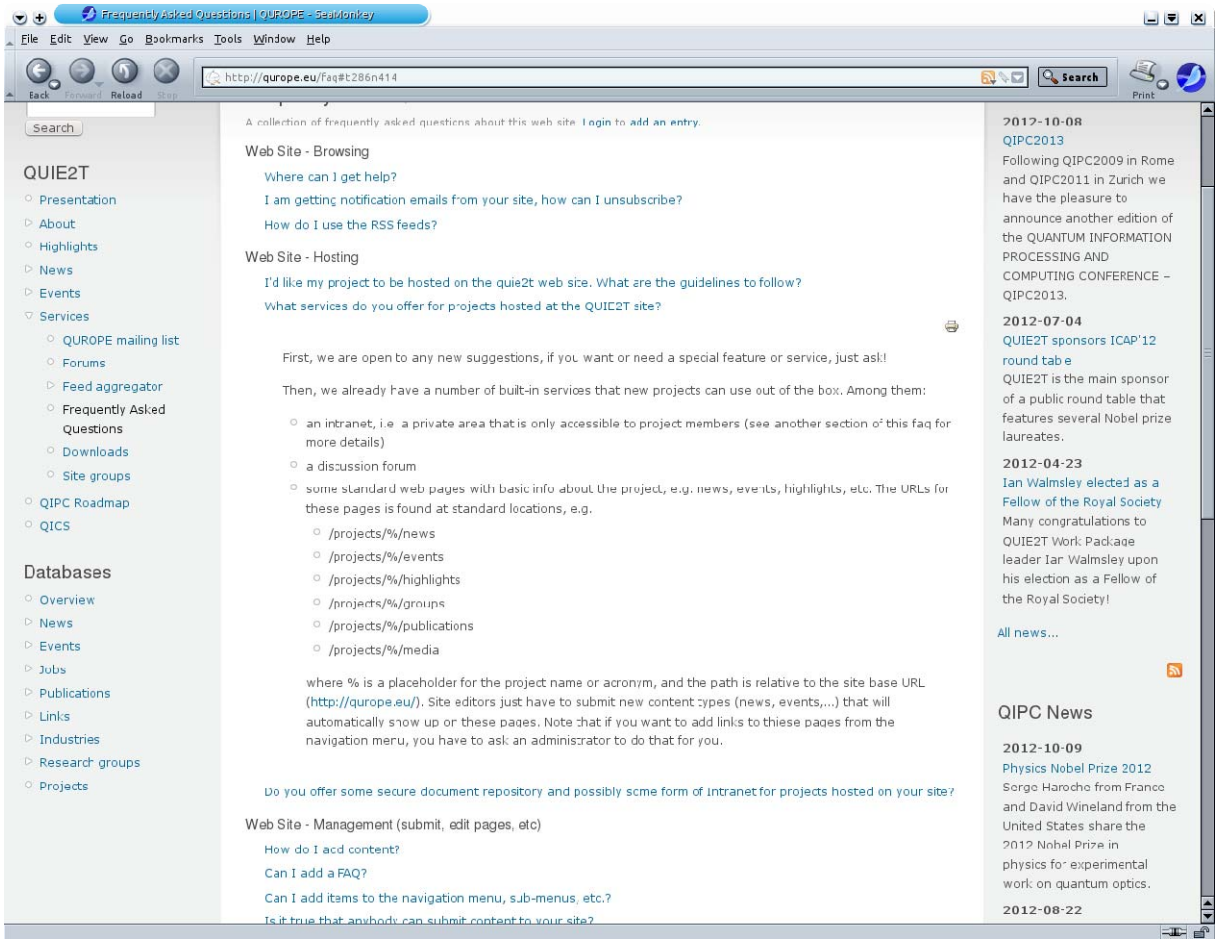
[16] Hhttp://qurope.eu/content/qurope-mailing-list

- Collection of news feeds[17] from interesting sites.

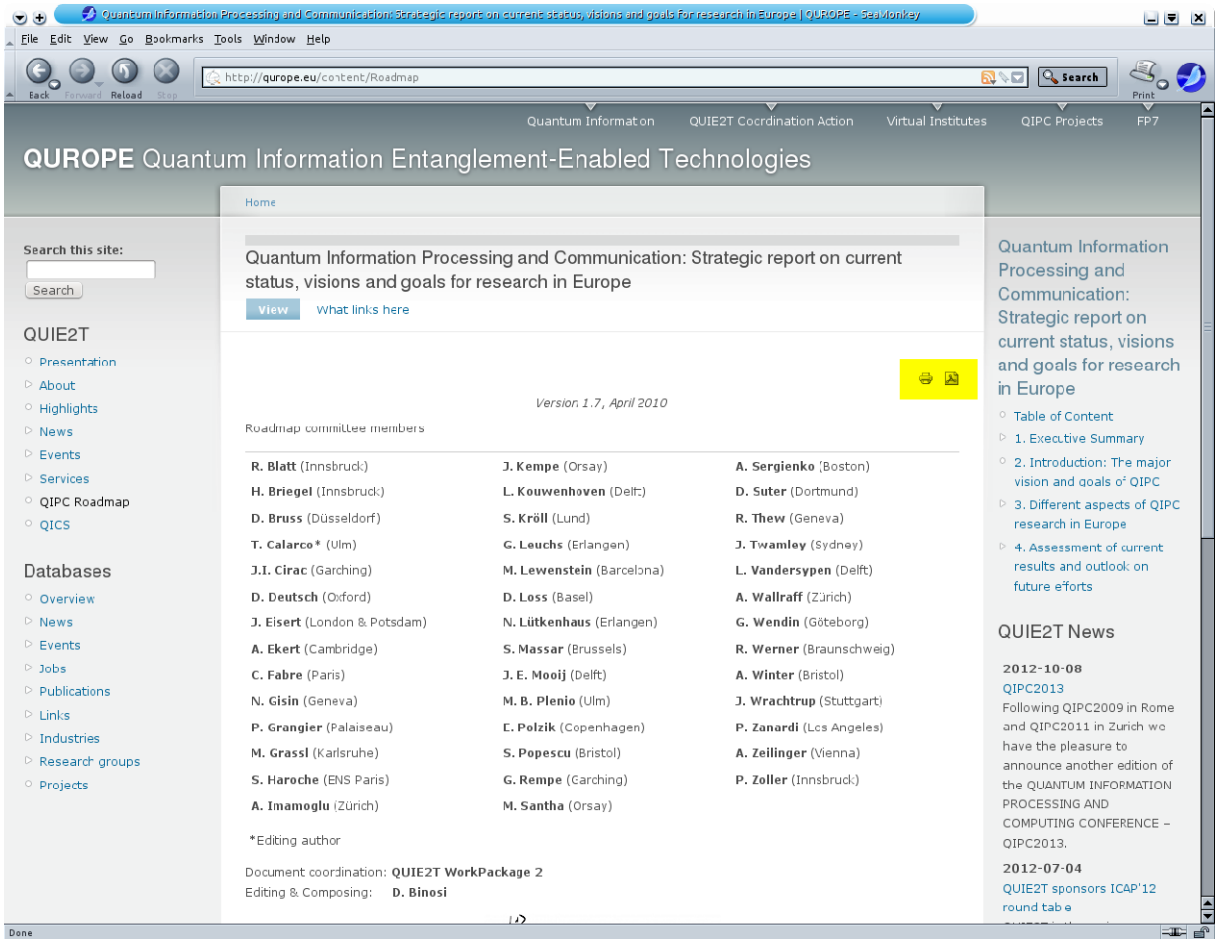


[17] Hhttp://qurope.eu/aggregator

- A hosting service for other QIPC projects, including advanced features like intranet, discussion forums, automated data aggregation (news, events, etc.).

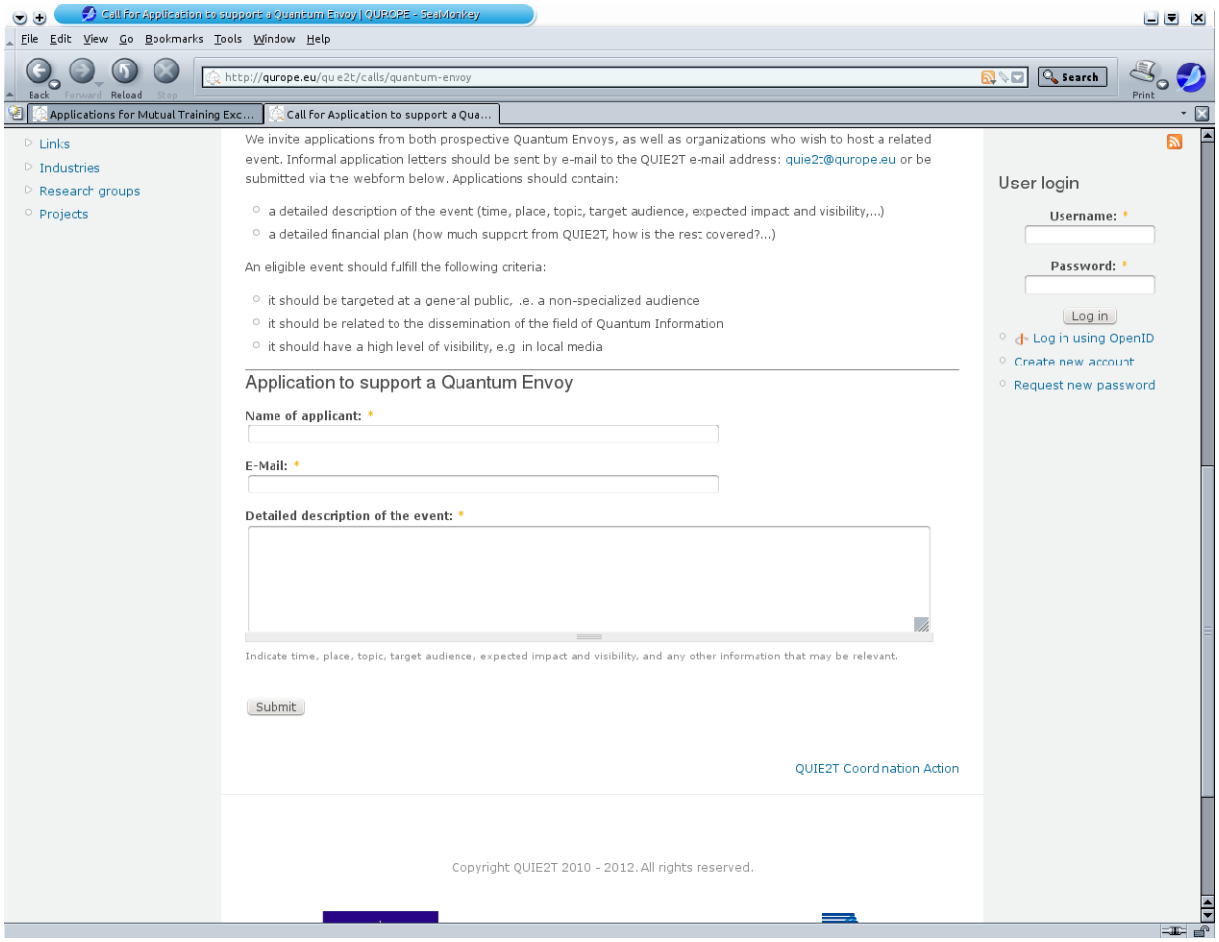


- The whole QIPC Roadmap[18] is maintained on the QUIE^{2}T web site, both its web and printable form. A printable pdf version can be obtained directly from the web source.



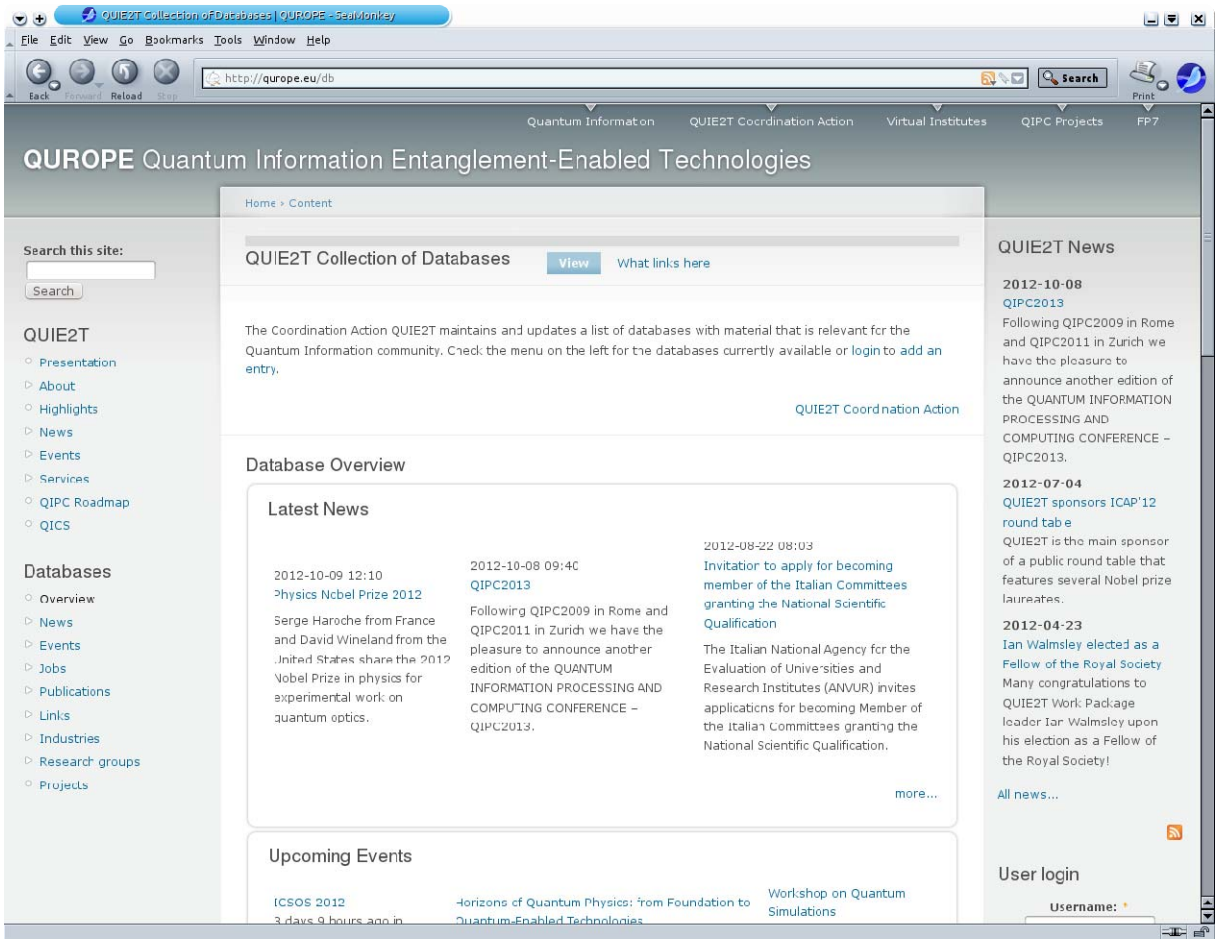
[18] Hhttp://qurope.eu/content/Roadmap

- The possibility to add webforms or application forms to web pages. This has been used by several projects for the organization of meetings or conferences (e.g. the first CHIST-ERA conference[19]), or for other application gathering (e.g. like the SOLID project for its training activities[20]). It is also used on the application page for the QUIE^{2}T Quantum Envoy[21].

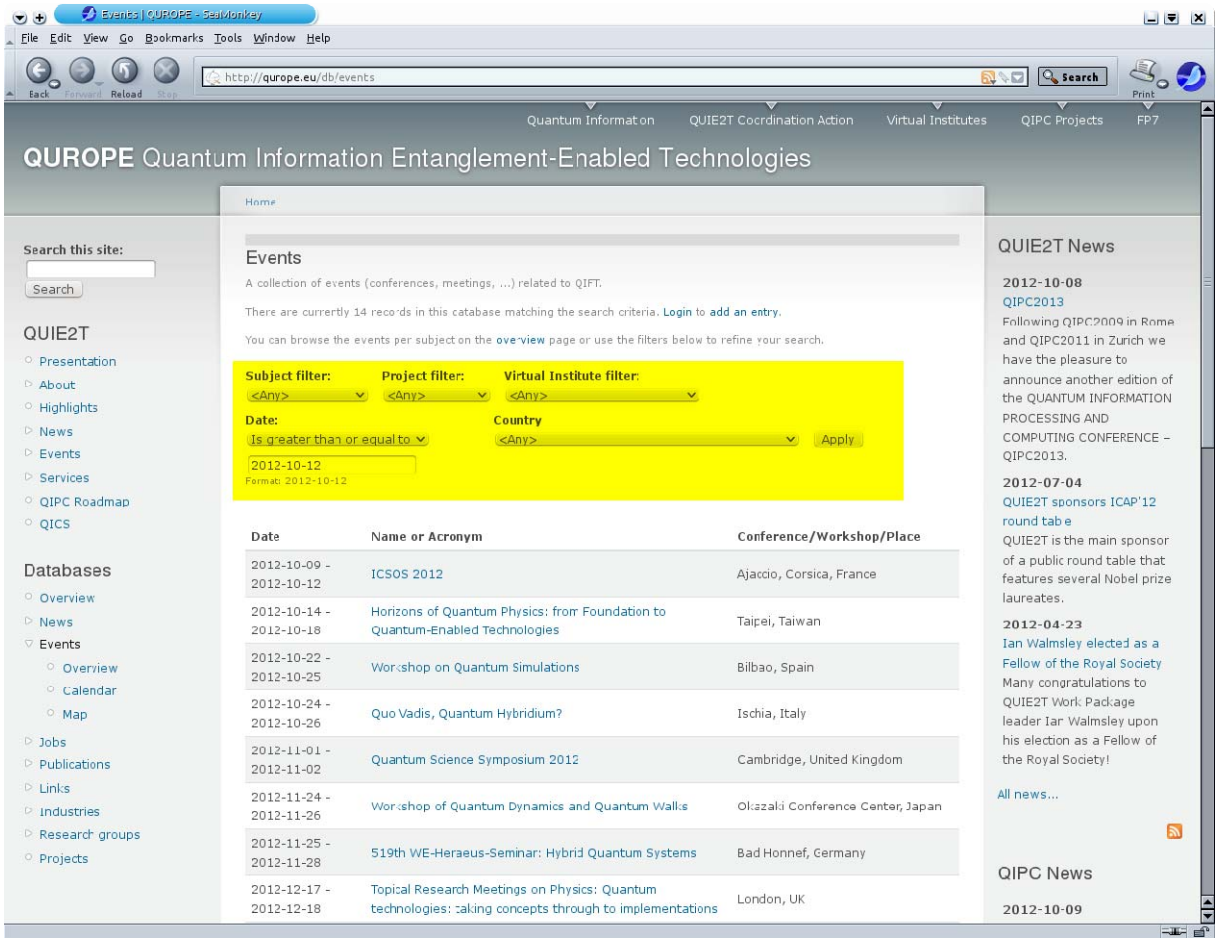


[19] Hhttp://qurope.eu/projects/chist-era/1st-chist-era-conference
[20] Hhttp://qurope.eu/content/applications-mutual-training-exchange
[21] Hhttp://qurope.eu/quie2t/calls/quantum-envoy

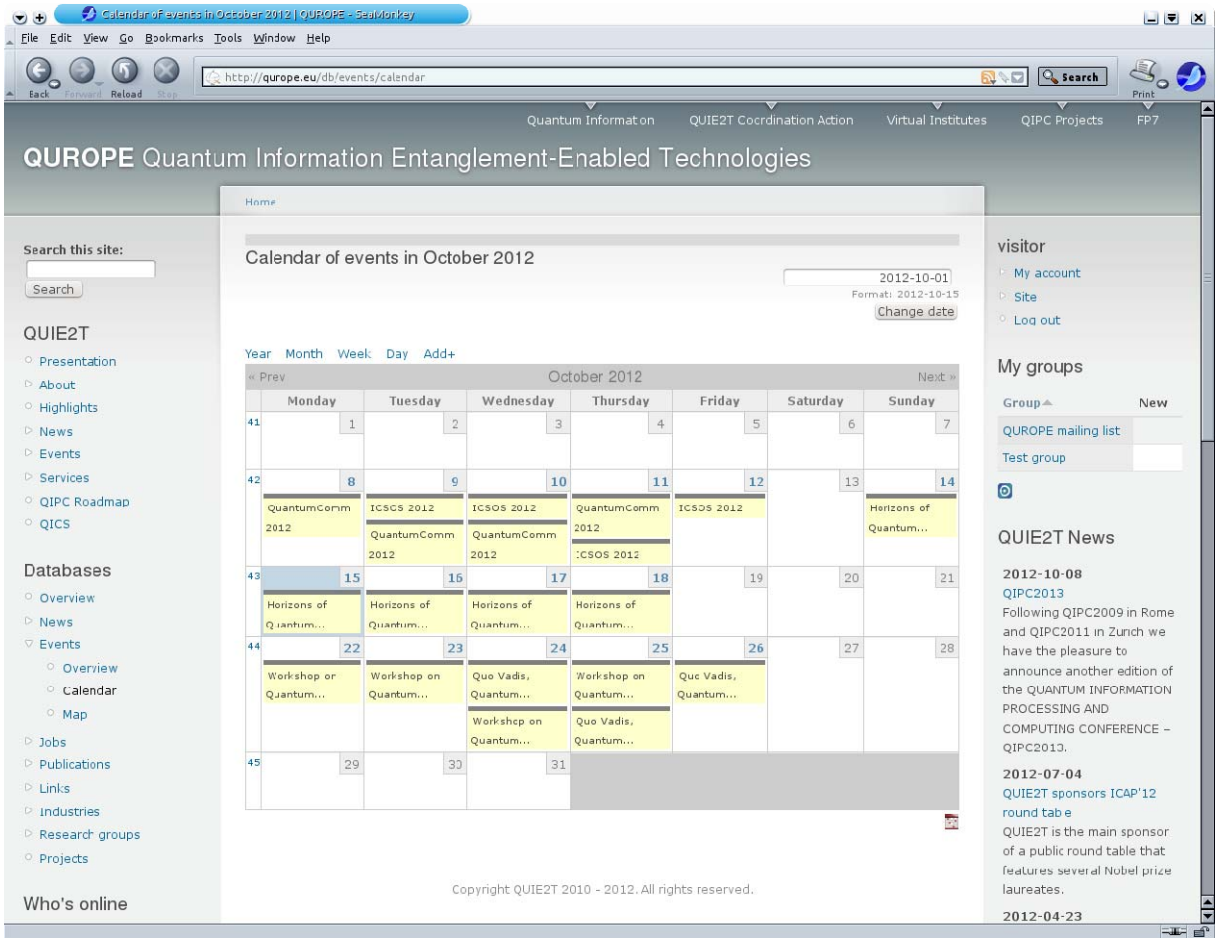
- An overview page for the database collection[14] with automatic updates for latest additions.



- Ability to filter most databases by subjects and keywords.

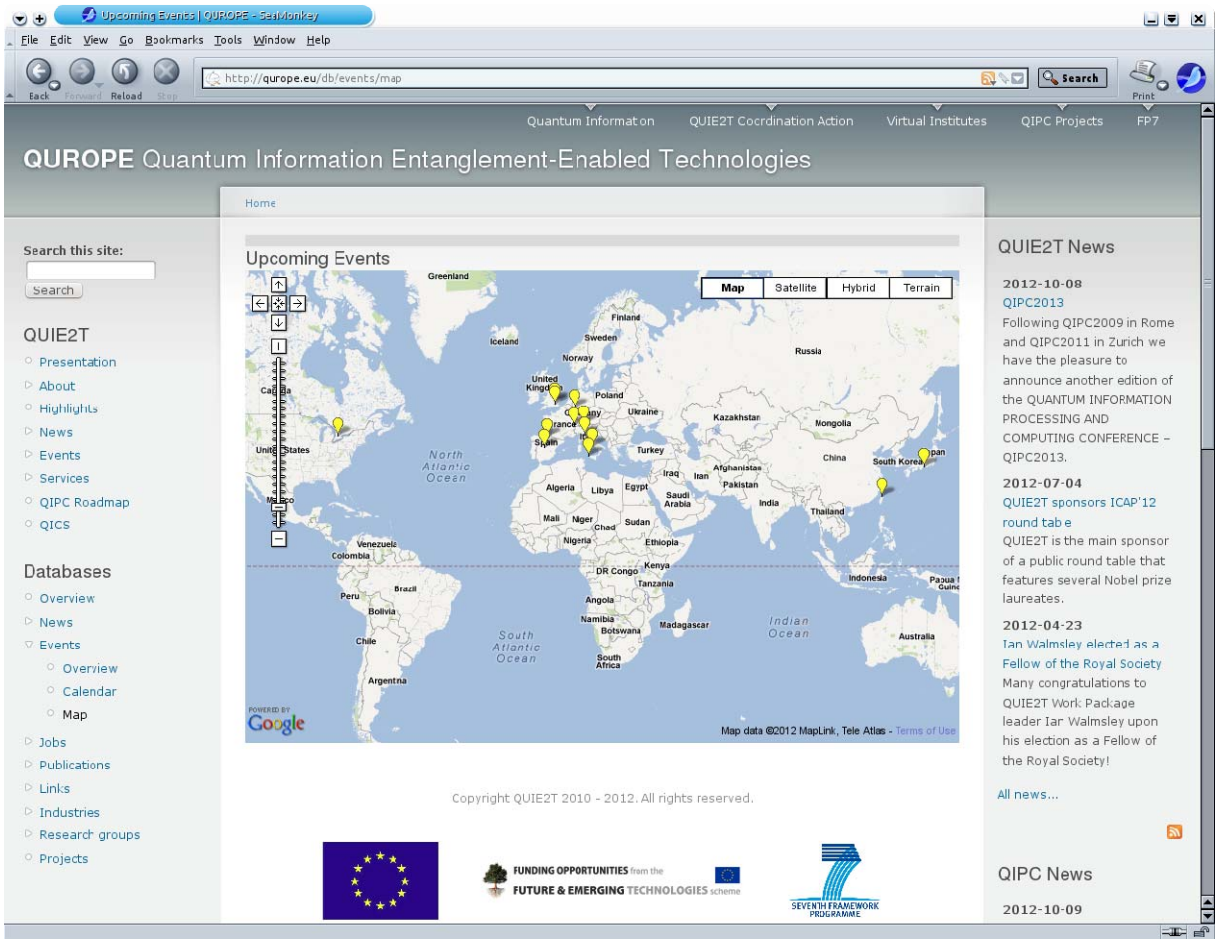


- Browsable calendar for events[22].



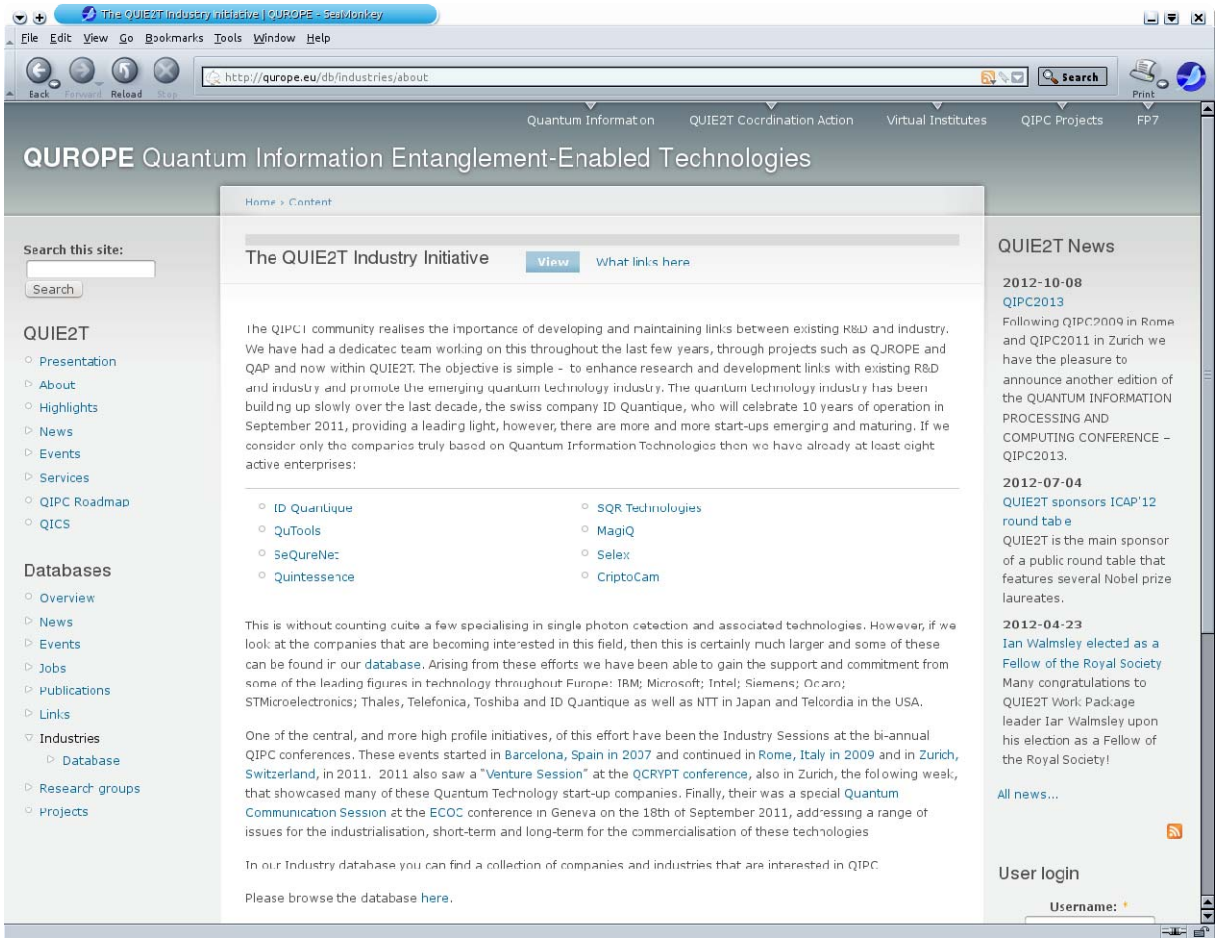
[22] Hhttp://qurope.eu/db/events/calendarH

- Google maps for node types that support a geographic classification, in particular events[23] (see screenshot below), jobs[24], industries[25], research groups[26] and projects[27].



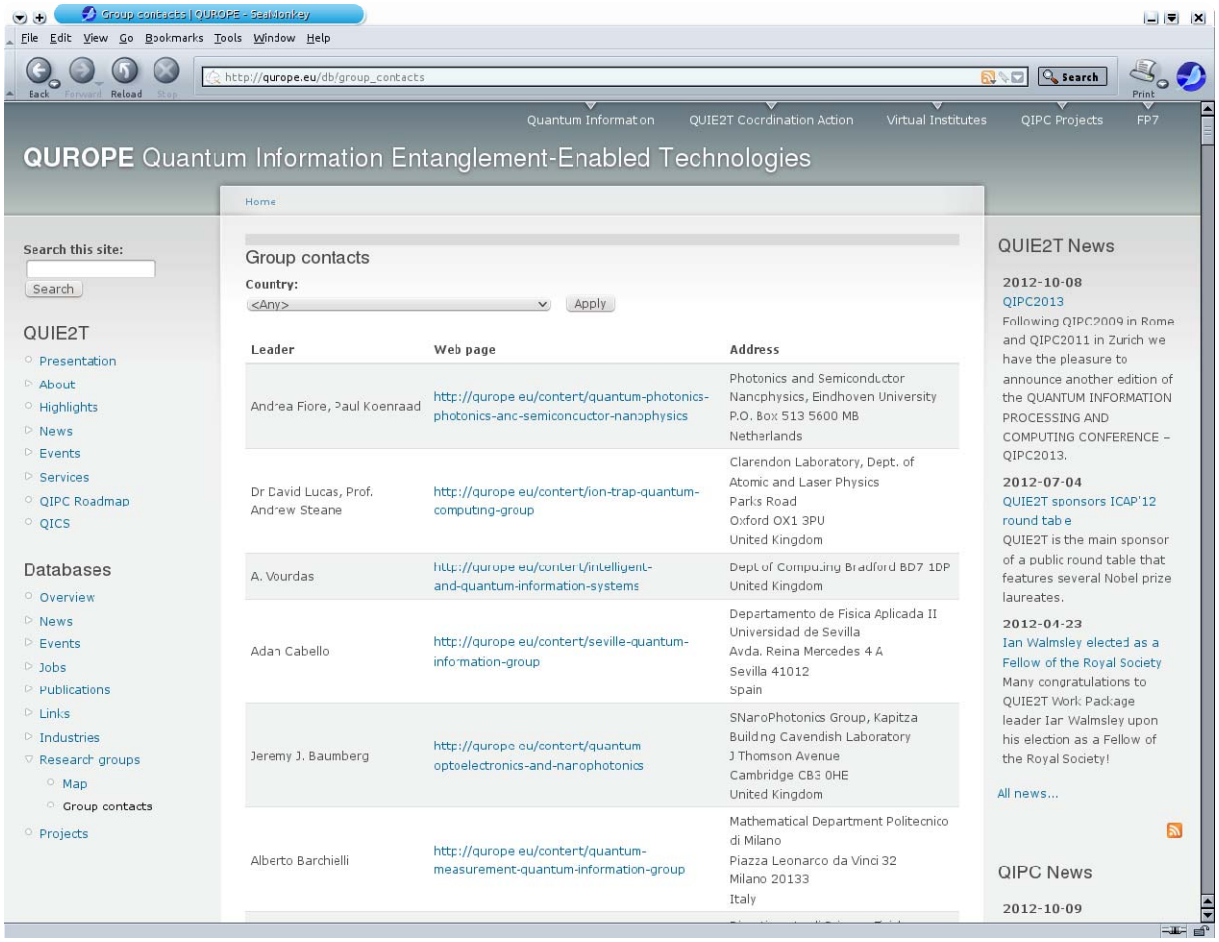
[23] Hhttp://qurope.eu/db/events/map/
[24] Hhttp://qurope.eu/db/jobs/map/
[25] Hhttp://qurope.eu/db/industries/mapH
[26] Hhttp://qurope.eu/db/groups/mapH
[27] Hhttp://qurope.eu/db/projects/mapH

- An overview page for the industry database[28].



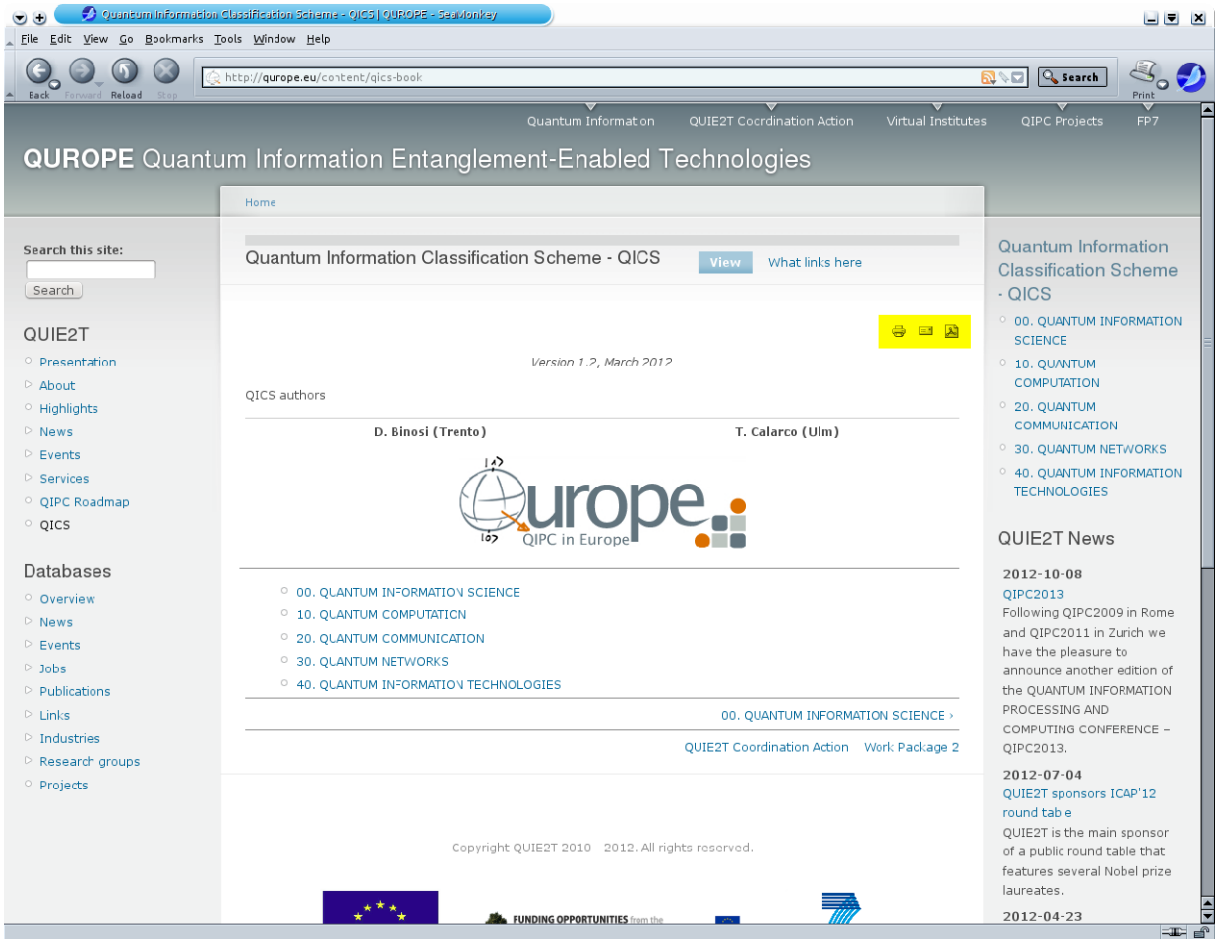
[28] Hhttp://qurope.eu/db/industries/about

- A page to show the contact information for all the research groups in the database[29] (with additional information for authorized users, e.g. email addresses are only shown to users with corresponding permission). The whole set of contact data can be directly exported to an XLS Excel style sheet using a small icon on bottom of the table.



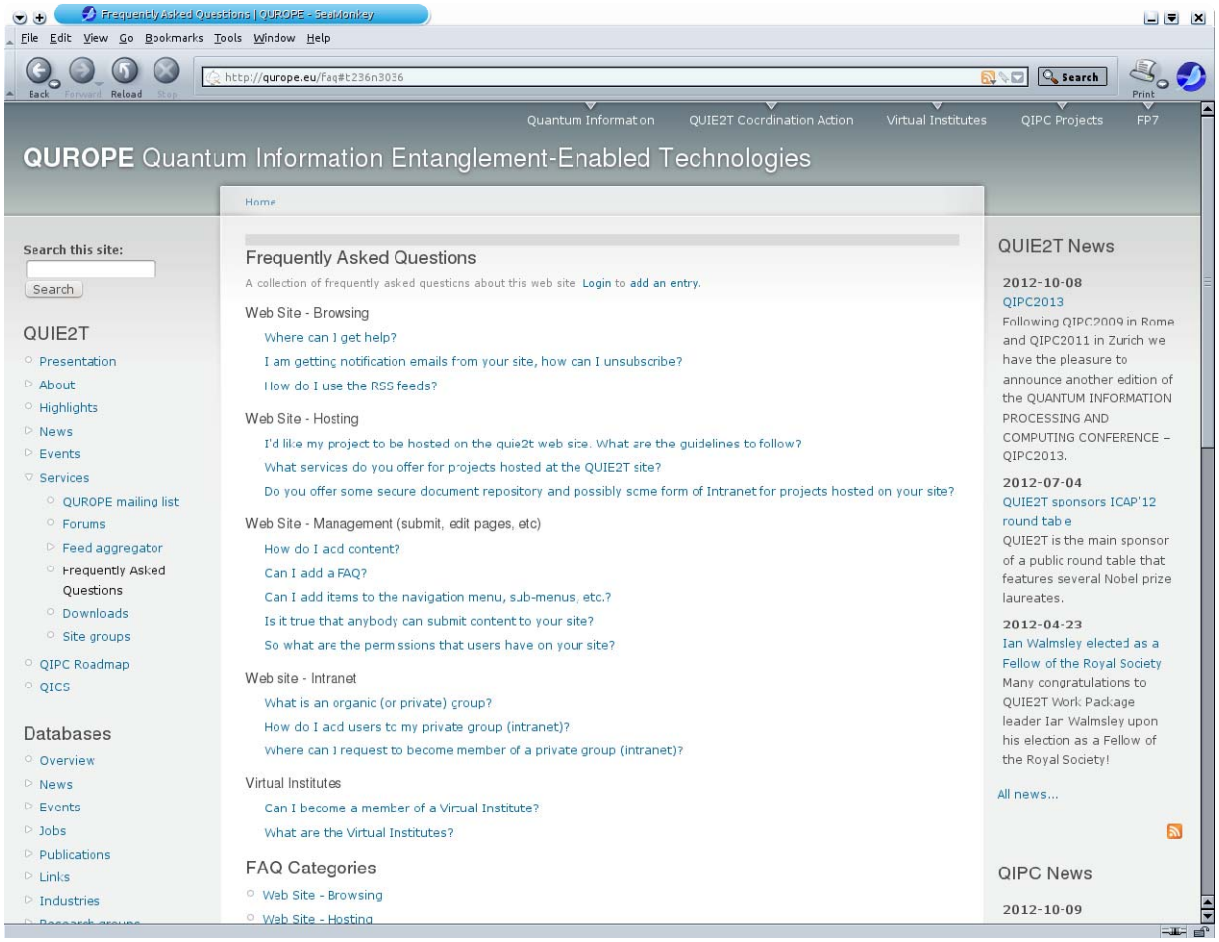
[29] Hhttp://qurope.eu/db/group_contacts/

- The Quantum Information Classification Scheme (QICS) is now maintained directly on the web site[30]. A printable pdf version can be obtained directly from the web source.



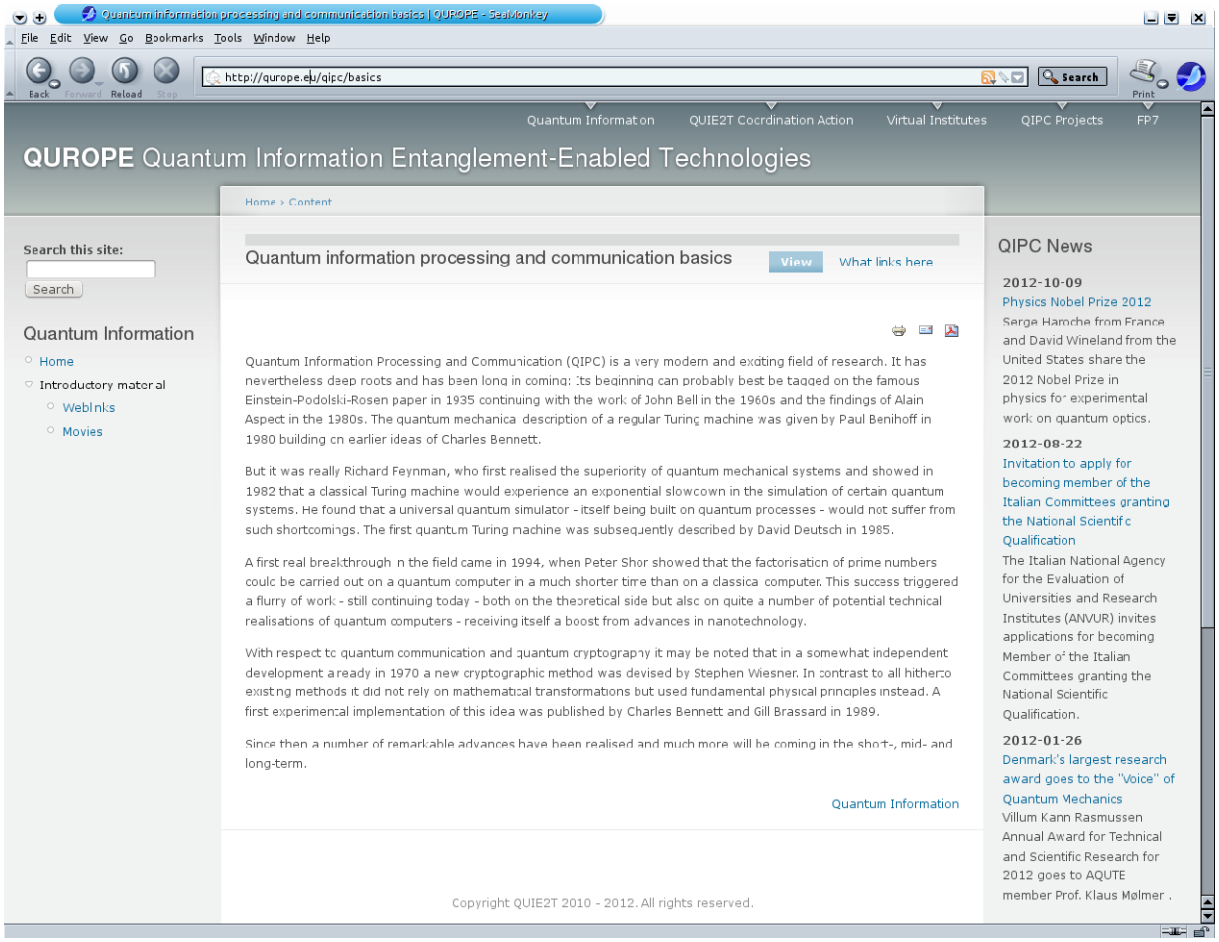
[30] Hhttp://qurope.eu/content/quantum-information-classification-scheme-qics/

- A collection of Frequently Asked Questions[31] (FAQ) to guide new users of the site.



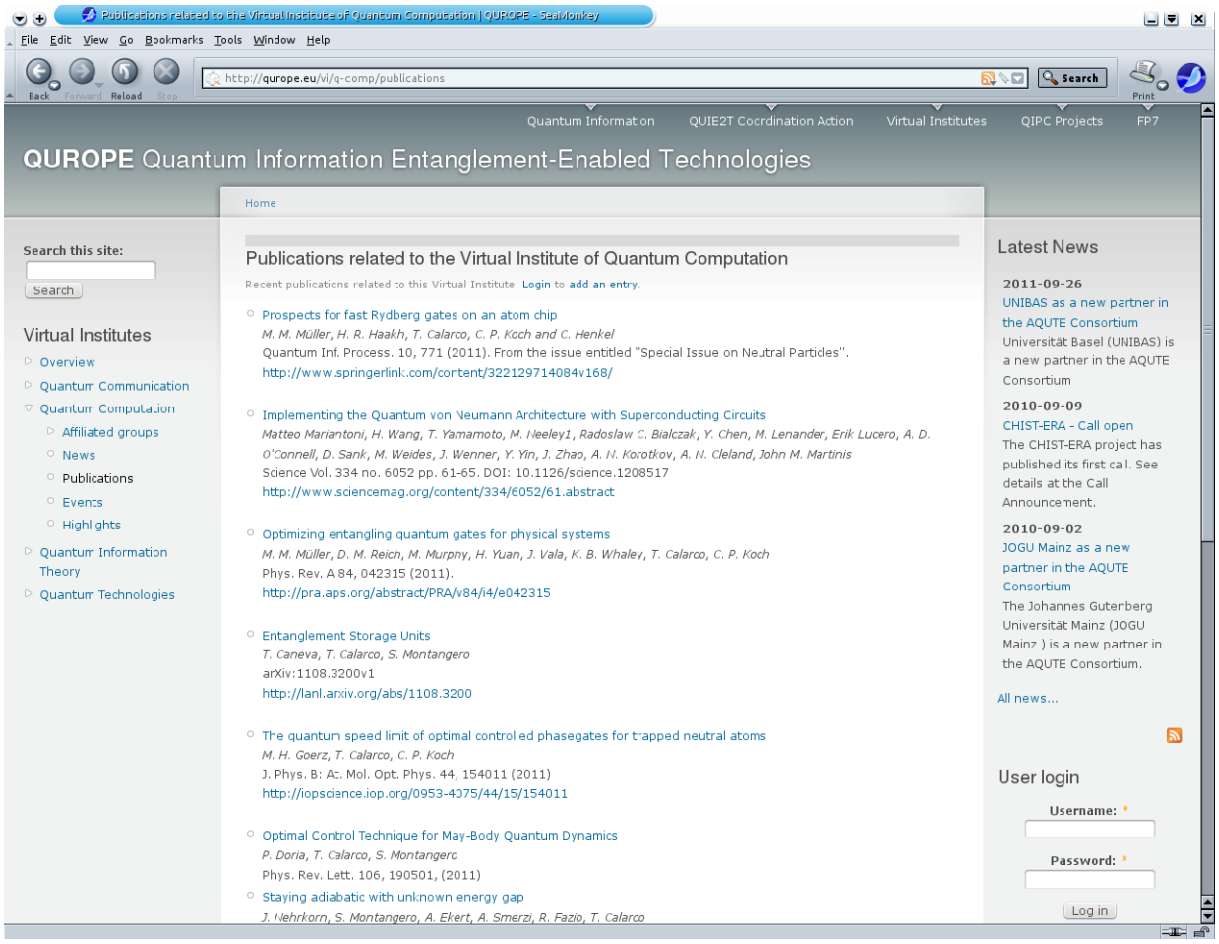
[31] Hhttp://qurope.eu/faq/

- A collection of introductory material to quantum information[32].

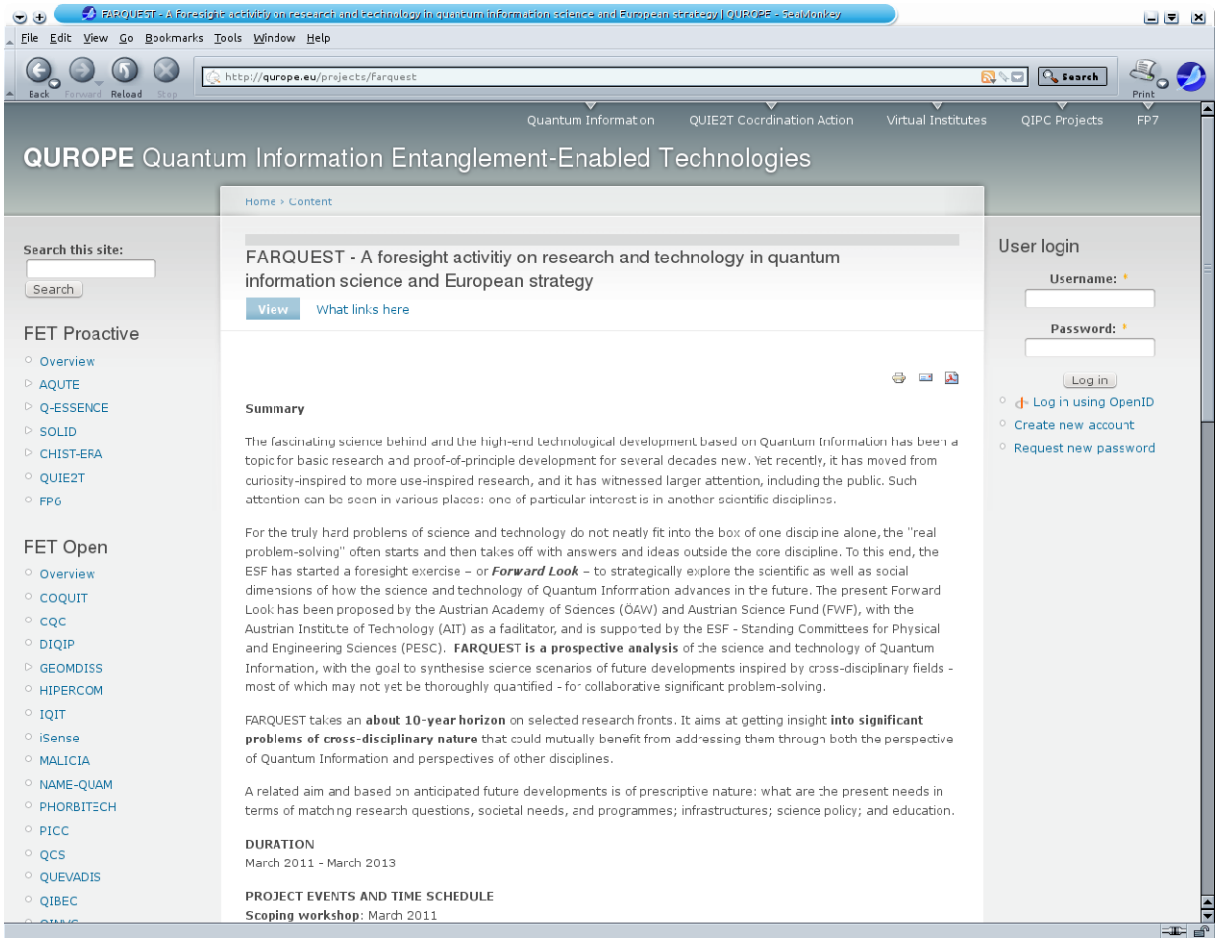


[32] Hhttp://qurope.eu/qipc/basics/

- A collection of affiliated groups, publications, events and highlights for each Virtual Institute, see e.g. http://qurope.eu/vi/q-comp/.



- A collection with associated filter abilities of currently open FP7 calls[33].
- The EC-FP7 projects GEOMDISS[34] and QUAINT[35] have decided to host their web sites at the `qurope.eu` web portal.
- The ESF project FARQUEST has decided to host its web pages at the QUROPE site[36].



[33] Hhttp://qurope.eu/fp7/callsH
[34] Hhttp://qurope.eu/projects/geomdissH
[35] Hhttp://qurope.eu/projects/quaintH
[36] Hhttp://qurope.eu/projects/farquestH

WEB SITE STATISTICS

Finally, we are also collecting basic statistics about page hits on our site. In May 2011 we registered the site at Google Analytics[37], a web-based tool that generates detailed reports about visitors to a web site, providing elaborated info about their provenance and type of visit done. For instance it is possible to see how many visitors came from a search engine (and which keyword they used), their geographical provenance, how much time they spent on the site and the page they visited. It is also possible to set up goals (like viewing a particular page, or downloading a file) and assign a value to them, such to measure achievements of objectives. The qurope website has been connected to Google Analytics, with the aim of better understanding the web site usage trends and thus acquire suggestions for improving not only the web site itself but the whole dissemination strategy.

The Table below shows the statistics for the period May 1, 2011 – Jan. 10 2013. Note that the page views only include hits of the exact corresponding page, i.e. no sub-pages are taken into account. For instance, the top-level page of the qurope.eu site has been hit 6812 times in the given time period, i.e. about 11 hits per day.

The most popular pages on the site, apart from the sub-project pages, are the job database (5772 hits) and the QIPC Roadmap (1080 hits). Also the hosted projects can be proud of their statistics: since the creation of the web site, the AQUTE home page has been hit a total of 15928 times, the Q-ESSENCE home page 15662, the QUIE^{2}T home page 13028 times and the SOLID home page 8031 times.

[37] Hhttp://www.google.com/analytics/

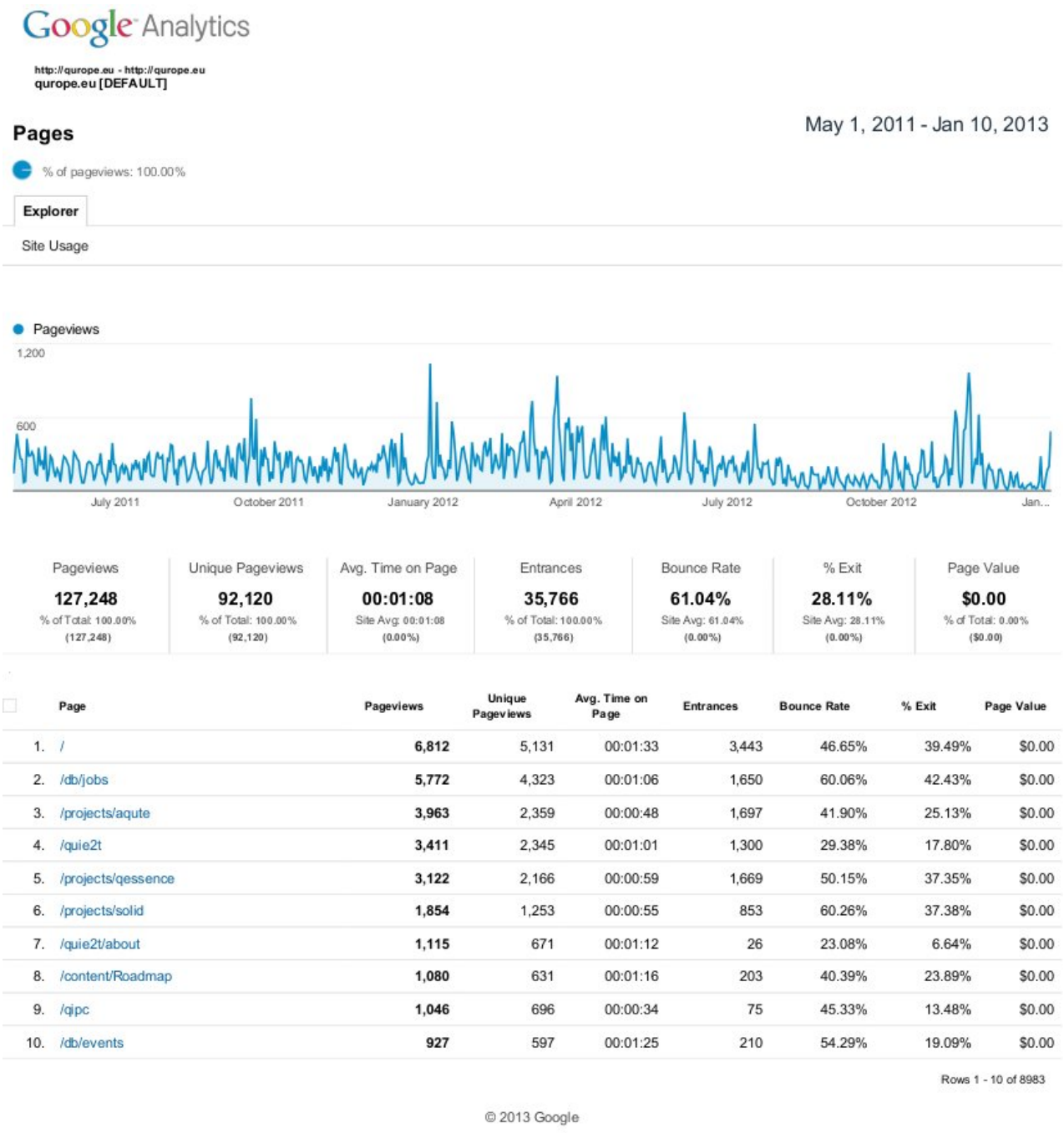


FIG. 7 GOOGLE ANALYTICS STATISTICS OVERVIEW REPORT ON THE QUROPE.EU DOMAIN. THE COVERED DATE RANGE IS 1.5.2011 – 10.1.2013.

T3.3 MAINTENANCE AND UPDATE OF EXISTING QUROPE DATABASES

Note: An extensive description of the QUROPE databases is presented in the document '*Deliverable D1.2.2: Final report with a presentation of collected and analyzed data*', prepared by WP1, which has also been submitted in this reporting period and which is available at the QUIE^{2}T web site[38].

All the existing QUROPE databases have been successfully ported to the new qurope.eu web site, this includes in particular the Industry database, and the collection of research groups and contact details.

The databases themselves have been established and maintained by QUIE^{2}T WP1, the work of WP3 consisted in setting up the infrastructure to submit and present the data in a comprehensive manner. The complete database collection is available at http://qurope.eu/db.

During the first year, an infrastructure has been set up to collect relevant data and to present it at the project web site. All the existing databases that were established by the predecessor project QUROPE have been ported to the QUIE^{2}T web site, this includes in particular the industry database, and the collection of research groups and contact details. All databases are continuously monitored and relevant additions are disseminated via the QUROPE mailing list.

Some statistical data can be extracted from the database collection:

- The Jobs database currently counts 220 entries, i.e. we had an approximate average of 1.5 submissions per week.
- The list of Research Groups currently counts 203 records. This number has only slightly increased during the recording time with about 10 additions in total.
- The collection of Publications currently counts 612 entries i.e. we had roughly four submissions per week.
- The Events database currently counts 168 entries, corresponding to roughly one submission per week.
- The News database currently counts 98 entries. On average about one exciting news story was added every two weeks.
- The industries database currently counts 50 entries. This number has stayed roughly constant over the past years as we had a few additions but also a few removals of start-up companies that apparently have disappeared again.
- The Links database currently counts 309 distinct links, i.e. we had almost two submissions per week.

[38] Hhttp://qurope.eu/quie2t/wp1/deliverablesH

- Currently there are a total of 321 distinct PR Activities in the collection, i.e. we had about 2 submissions per week. Note however that some projects classify, say, normal conference presentations as PR Activities, which is not the initial intent of the category.
- Currently there are a total of 54 distinct entries in the Projects database. This number has steadily increased over the past years with an almost constant number of projects being added each year.

For a more detailed presentation and discussion we refer to the document D1.2.2 mentioned above.

T3.4 INFORMATION AND PROMOTION MATERIAL

ICT 2010, BRUSSELS

As part of the WP3 activities we have presented an exhibit at the ICT 2010[39] conference in Brussels, 27 – 29 September 2010. The event was very well-attended both by specialists and non-specialists including well-known media people.

The QUIE^{2}T exhibit[40] presented some exciting ideas and innovations at the forefront of QIPC research to demonstrate that European researchers are aiming to capitalise on recent developments in small-scale applications involving a few quantum particles. Visitors were able to discover what the term 'quantum' actually means, and its implications for ICT. As an example of a first commercial application of QIPC, a true random number generator for applications such as information security, gaming, lotteries, and scientific research, was demonstrated through a 'quantum roulette' game, in which visitors had the chance to win small prizes.

As QUIE^{2}T representatives, K. Pruvost and D. Binosi along with Professor Fedor Jelezko with his Stuttgart team (project SOLID), and members of Project Q-ESSENCE were present at the exhibition to demonstrate and showcase their research outcomes. The exhibition was visited by key media people and journalists including elite newspapers like the British 'Financial Times'.

.

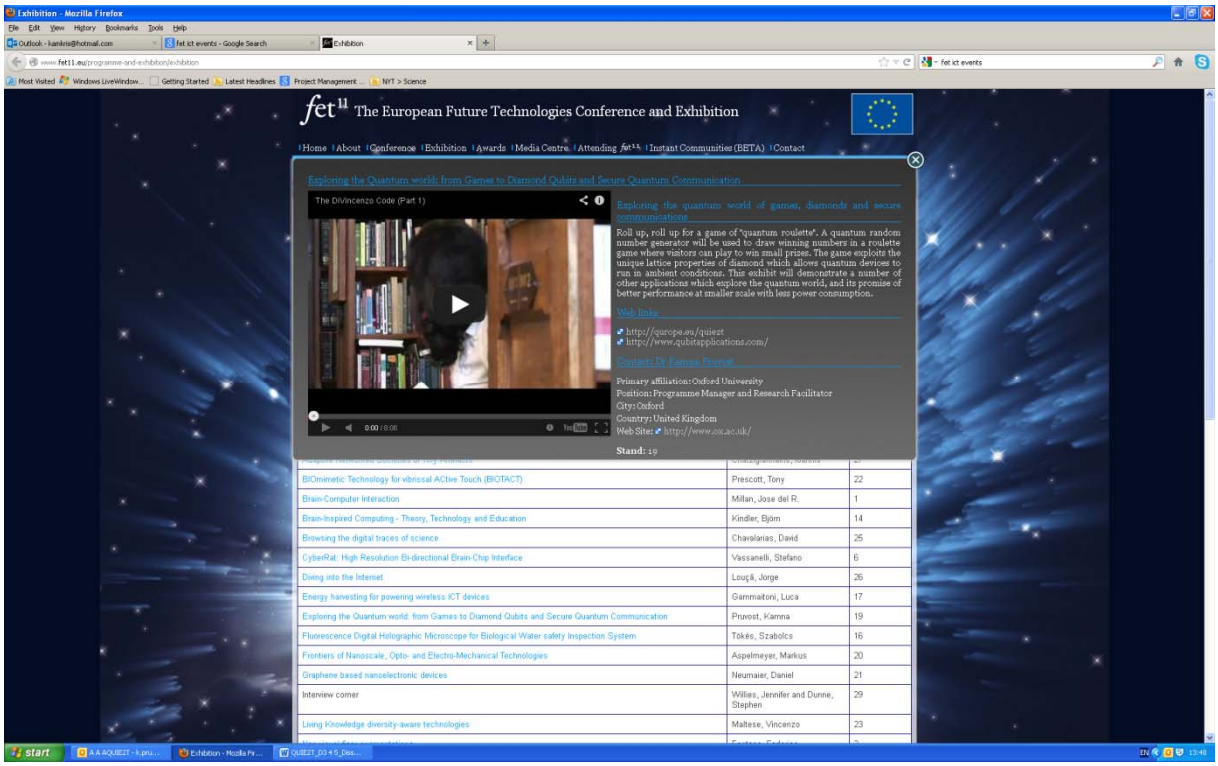
[39] Hhttp://ec.europa.eu/information_society/events/ict/2010/index_en.htmH
[40] Hhttp://ec.europa.eu/information_society/events/cf/ict2010/item-display.cfm?id=2988H

QUIE2T
Quantum Information
Entanglement-Enabled
Technologies

FET'11, BUDAPEST

QUIE^{2}T was represented at the Commission's ***f*et11** conference taking place from 4 to 6 of May in Budapest[41]. An exhibit proposal that was submitted in response to a European Commissions call has been successfully evaluated and was among the 28 exhibition stands present at the conference. The exhibit was coordinated and led by QUIE^{2}T representative Dr. Kamna Pruvost along with teams from VQC, Vienna led by Professor Markus Aspelmeyer[42] and from Stuttgart led by Professor Prof. Dr. Jörg Wrachtrup[43] who show-cased their experiments. According to the commission, "***fet11*** *is a unique conference on visionary, high-risk and long-term research in information science and technology. Featuring an exceptionally broad range of scientific fields the event will seed new ideas across disciplines that will reshape the future*".

In the same spirit as the Brussels exhibit one year before, the exhibit at ***f*et11** brought some of the research highlights of the consortia to specialist and to non-specialist audiences in an interactive manner. The aim was to show the trans-formative potential of the fundamental research. At the same time we could attract the interest of young researchers motivating them to take on the challenges of cutting edge technological research. The presentations were interactive with minimal textual content, using videos as well as demonstrations that would give the audiences an opportunity for hands on experience of some complicated technology experiments. Such the progress in different strands of QIFT activities in Europe was demonstrated.



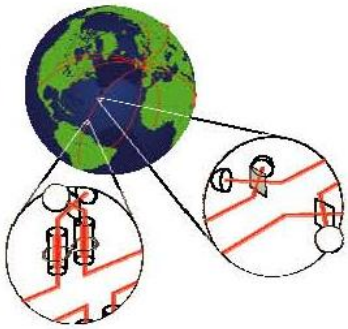
[41] Hhttp://www.fet11.eu/
[42] Hhttp://aspelmeyer.quantum.at/markus-aspelmeyer.2705.htmlH
[43] Hhttp://www.pi3.uni-stuttgart.de/index.php?article_id=53H

A project flyer that served as a press release was distributed at the conference, see Fig. 8.

Progress in Quantum Information Foundations and Technologies in Europe

Kamna Pruvost, Joshua Nunn

The European Coordination Action QUIE2T, supports research into Quantum Information Foundations and Technologies. We'll be at the ***fet11*** event in Budapest (http://www.fet11.eu/) showcasing our medium and long-term research in superfast quantum computing and ultra-secure quantum communications, including:



Quantum networks could span the globe providing ultrasecure telecoms

- Ion Trap Quantum Processors

The traps store individual ionised and laser-cooled quantum atoms which are used as quantum bits. We'll present three traps developed at Oxford using semiconductor micro-fabrication technology. There'll also be a rotating model of a single ion trap from Ulm University where people can start playing and experimenting with this hands-on device.

- Quantum memory

Oxford is developing a *quantum memory* which can store photons and then release them, a crucial technology for quantum computing with light. Our memory is very simple, consisting of a room-temperature glass cell filled with cesium vapour, and a laser. You'll be able to see the cell at the exhibit, and we'll explain how we stored short pulses of light just a fraction of a nanosecond long.

- Diamond qubits

We all know diamond is an amazing material; it's even perfect for quantum computing! Qubits embedded in diamond are protected from noise, allowing operation in ambient conditions. These qubits are also the world's smallest magnetic sensors. Along with the University of Stuttgart we will showcase a millimetre-sized device with millions of these tiny sensors.

- QKD

We'll showcase the latest developments in *quantum key distribution* – which allows guaranteed-secure quantum communication – from Swiss firm IDQUANTIQ, including a demonstration of six encrypted links at Siemens in the Netherlands.

- Quantum random number generators

These devices exploit the fundamental randomness of quantum physics to output random numbers for cryptography, gaming and research. A "Quantum Roulette" will allow visitors to play to win prizes!

Fig. 8 Press release project flyer presented at FET11.

THE QUBITLAB

Oxford as WP3 leader has created some video clips based on key scientific highlights that were launched on the web during this reporting period. The research ideas and results in these films reflect the FET ideas of the commission.

The videos, whose production is coordinated by QUIE^{2}T representative Dr. K. Pruvost, with participation and contributions by key research teams from across Europe and abroad, are publicly available on YouTube:

http://www.youtube.com/user/TheQubitLab/videos/

Three new video clips are in the final editing stage and will be on the website in the next few weeks.

Following a recommendation at the second review meeting, we have also set up a public page on Facebook:

https://www.facebook.com/TheQubitLab

QIPC'11, ZURICH

Another main work topic within the dissemination activities concerned the interaction and dissemination towards industries and commercial stake holders. The core public event in this respect was a dedicated 'Industry session' that was organized by the CA within the QIPC'11 conference that took place from Sep. 5-9, 2011 in Zurich, Switzerland. The conference was one of the biggest QIPC events of the year in Europe.

After the successful Industry Sessions held at the previous QIPC meetings in Barcelona'07 and Rome'09, this event again offered a platform for exchanges between academic researchers and industry leaders. The session was opened by QUIE^{2}T work package leader Tommaso Calarco, who briefly explained the aim and the history of the activity, and hosted by QUIE^{2}T work package leader Nicolas Gisin, who further explained the new format of having representatives from industry and academic research in the session.

Following this, there were presentations by **Dr. Bruno Michel**, from IBM Research, Zürich, who talked about '*Computing after scaling: New computation paradigms*', and **Dr. Grégoire Ribordy**, CEO of ID Quantique, who were celebrating their 10th anniversary this year. The title of his presentation was accordingly '*Commercializing QITechnology for 10 years*'.

On new and promising potential applications in quantum metrology there were presentations by two researchers, **Dr. Jürgen Appel** from the Niels Bohr Institute in Copenhagen, who

talked about '*Mesoscopic atomic superposition states for metrology and QI*', and **Dr. Bruno Sanguinetti** from the Group of Applied Physics in Geneva with a presentation on '*Quantum cloning for absolute radiometry*'.

The event was well attended and sparked a number of interesting questions and lively discussions.

In addition to participating to the dedicated industry session, ID Quantique had a permanent stand at the conference, showcasing some of their commercial products, in particular QUANTIS (a true random-number generator) and CLAVIS^2 (a QKD research platform).

PUBLIC TALKS

Some public talks by QUIE^{2}T members illustrate the potential outreach activities:

- V. Buzek: Jun. 17, 2010: "From bit to qubit" public talk, Kosice.
- V. Buzek: Nov. 3, 2010: presentation on "Quantum Information Technologies", Istanbul chamber of commerce
- E. Giacobino: Dec 15, 2010: "Quantum Information Technologies", (European Workshop "From Quantum Foundations to Quantum Technologies - Challenges for Europe", Vienna)
- C. Zeques: QUIE^{2}T Presentation at the FET Coordination Action Workshop, 26-27 October 2010 in Brussels. The presentation can be downloaded from the workshop web site[44].
- QUIE^{2}T coordinator Vladimir Buzek has been selected to share his experiences about running a CA at the FET Proactive Information Day[45]. The ‚Information Day - FP7-Call-9‘ took place on 18 Jan 2012 in Brussels and was attended by some ~250 people. The slides of the presentation are available for download from the Info Day Agenda[46].

[44] Hhttp://cordis.europa.eu/fp7/ict/fet-proactive/ca-ws-oct2010_en.htmlH
[45] Hhttp://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan12_en.htmlH
[46] Hhttp://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan12-ag_en.htmlH

T3.5 TRAVELING PROFESSOR 'QUANTUM ENVOY'

The QUIE^{2}T 'Quantum Envoy' task is concerned with a rather concrete kind of dissemination activity. The idea is to organize and support a travelling professor, i.e. a prominent scientist who, during a limited period of time, travels to various locations throughout Europe, and presents general aspects of QIPC in public lectures or presentations. The targeted audience for these lectures is the general public and interested newcomers, e.g. university and high school students.

A call for applications for a quantum Envoy support has been published on the QUIE^{2}T web site at

http://qurope.eu/quie2t/calls/quantum-envoy

where also a web form is available for direct on-line applications.

The call has been broadcast several times to the QUROPE mailing list, however, in the course of a three-year project, only two applications were received.

In the second half of 2010, there were concrete talks and email exchanges on two occasions: one for a public lecture tour in Europe by Hans Bachor, the other for a public lecture of Ignacio Cirac in Vienna. On both occasions, sufficient funds were available from original sources so no support from QUIE^{2}T was needed.

The lesson we learned from these exchanges is that one needs not only a speaker and a program, but also an infrastructure to publicise the event to a broad target audience. One possibility that seems most promising in this regard is to organize some public lectures during our own big QIPC conference, which already happened once with a very successful public evening at the QIPC07 conference in Barcelona. The possibility was discussed for the QIPC conference in Zurich but did not materialize because of schedule constraints. It will be pushed again for the agenda of the QIPC 2013 conference in Florence[47], to be organized this year.

[47] Hhttp://www.cqstar.eu/QIPC/index.htmlH

The only application that was received in the first year of QUIE^{2}T came from Profs. M. Leduc, H. Perrin and P. Grangier who were organizing the 23rd International Conference on Atomic Physics (ICAP 2012), held at Ecole Polytechnique in Palaiseau, France from July 23rd to 27th, 2012. A web site is available at http://www-lpl.univ-paris13.fr/ICAP2012/.

On this occasion, it was decided to organize a round table between four Nobel Prize winners who were present at the conference: Bill Phillips (NIST, USA), Claude Cohen-Tannoudji (ENS Paris), Wolfgang Ketterle (MIT, USA), and Roy Glauber (Harvard, USA). Professor Dan Kleppner (MIT, USA) also participated to the Round Table, animated by Jean Dalibard (ENS, Paris). The general theme was the birth of cold atoms physics, in which all participants have played a major role.

Given the major role of atoms and ions cooling and trapping in the current developments of Quantum Information Science, and also of the major role of quantum optics, founded by Roy Glauber, for Quantum Communications, QUIE^{2}T was asked for a support of 6000 Euros, devoted to the organization of the Round Table.

The support of QUIE^{2}T was acknowledged on the program and during the event, and QUIE^{2}T was included in the official list of sponsors. Quantum Information Science was strongly represented at the Conference, both in the Program Committee and the sessions on Quantum Information and Quantum Simulations.

The Round Table was part of a special evening on Tuesday July 24th that was open to attendance by people not registered at the conference, in line with the QUIE^{2}T objective of broad dissemination.

The application letter as well as a detailed report by the organizers is included in the separate report for '*D3.5.3: Final report on Quantum Envoy activities*'.

A slide show of the complete round table discussion is available at the conference web site:

http://www-lpl.univ-paris13.fr/icap2012/roundtable.htm.

A second application came from Profs. Gershin Kurizki and Daniel Esteve for the workshop:

QUO VADIS, QUANTUM HYBRIDIUM?

(IN MEMORIAM ANTONIO BARONE)

October 24-26, 2012, Ischia, Italy

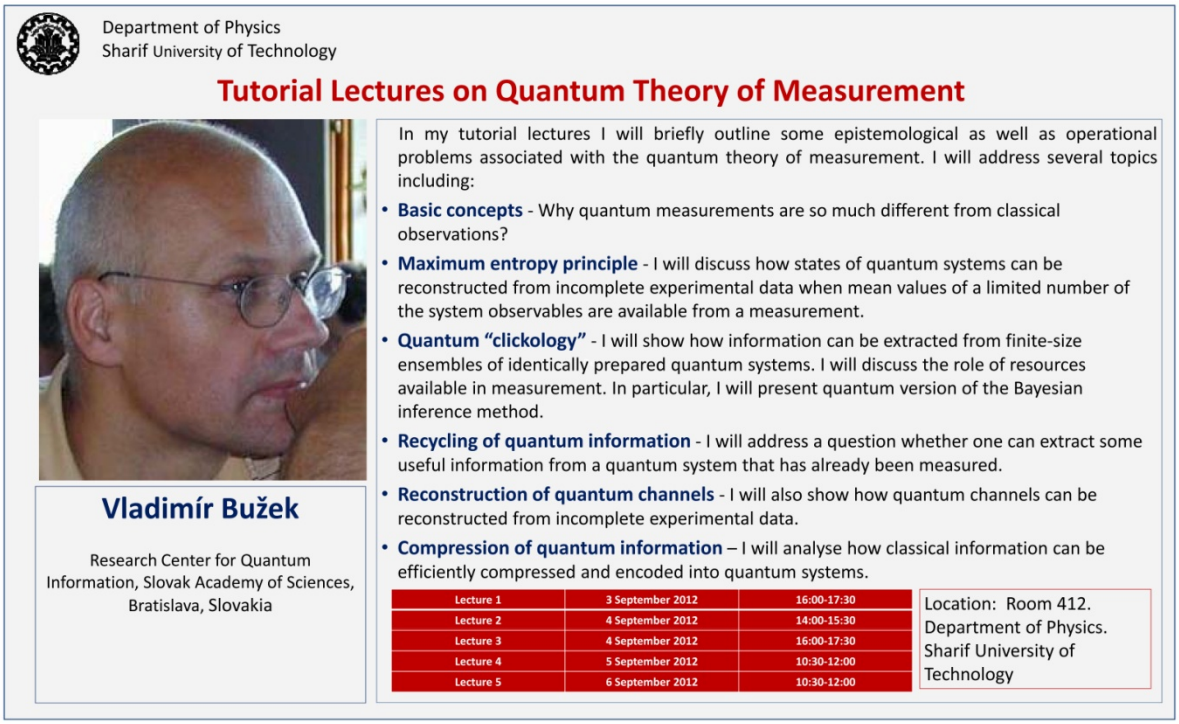
The demanded support was initially for a public talk delivered by M. Lukin from Harvard University. Due to a last-minute unavailability of M. Lukin, he was replaced by his collaborator Prof. J. Taylor of UMD / NIST. He gave the same public talk that was scheduled for M. Lukin with the topic

‚*Exploring new frontiers of quantum science with hybrid systems* ‘.

A copy of the application as well as a report by the organizers is included in the separate report for ‘*D3.5.3: Final report on Quantum Envoy activities*’.

Another event supported by the QUIE^{2}T Quantum Envoy program were 6 public talks for Iranian students, delivered by Prof. V. Buzek from Bratislava at Sharif University of Technology, Tehran, Iran. There were approximately 80 students per lecture who were very enthusiastic and evidently enjoyed the talks and discussions afterwards. A web site of the event is available at

http://iicqi-12.sharif.edu/Program.html



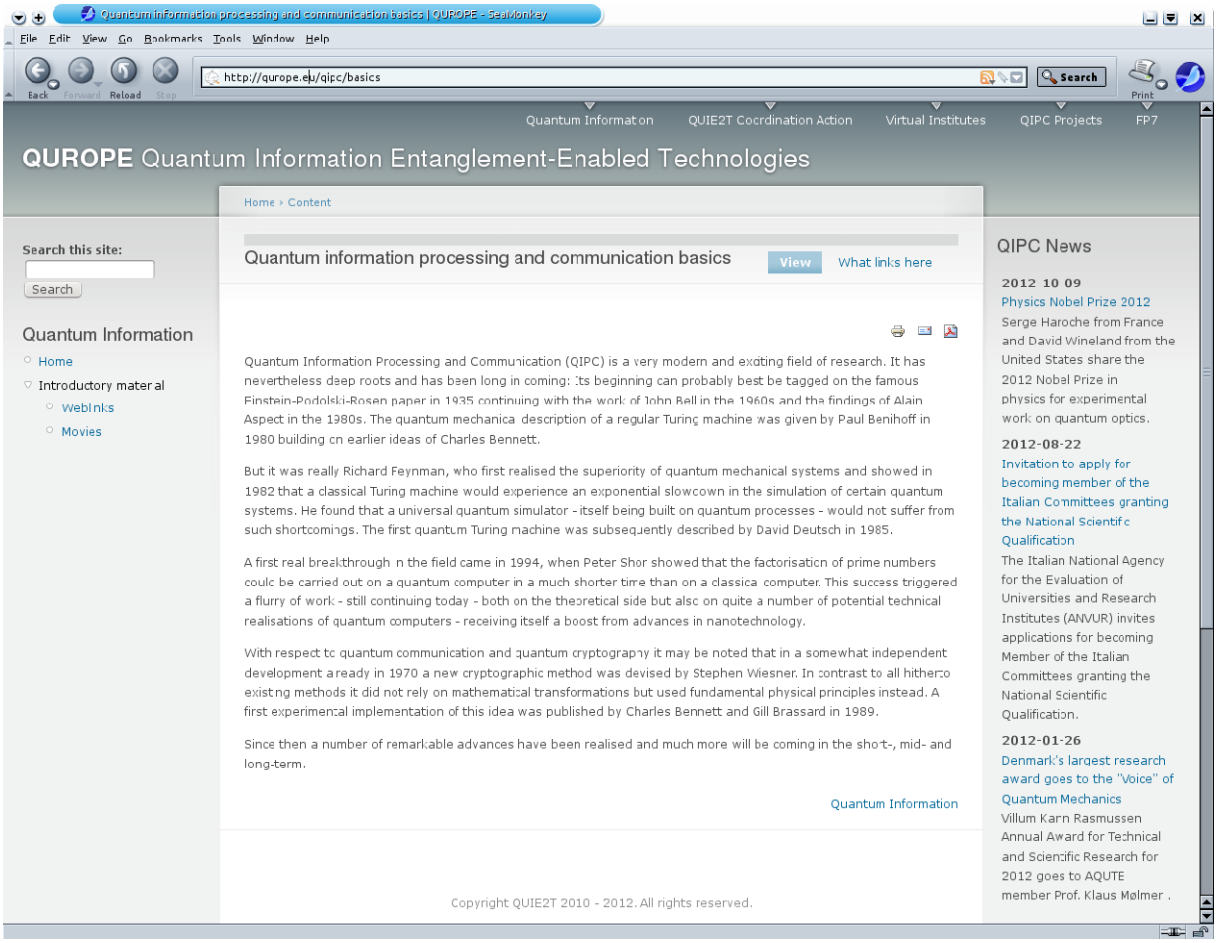
In summary, in order to evaluate the success of the ‚Quantum Envoy' program and idea as a whole, it appears that one would need to take a more pro-active approach to make it work. Instead of waiving with the funds and waiting for applications, it seems more promising to approach concretely some candidates with a specific program and schedule. However, this would need more careful and long-term preparation, as well as a certain willingness of the people involved, which in view of the busy agendas of the most prominent scientists, seems to be the major obstacle.

T3.6 SCIENTIFIC EXCHANGE AND LEARNING CENTER

An infrastructure for an interactive learning center has been set up at the QUIE^{2}T web site[48]. This part of the web site also hosts the collection of databases[49].

A collection of on-line background and learning material is available in this section[50]. Currently it contains a small collection of web links (sub-divided into major categories Movies, Quantum Entanglement, Quantum Computing, Quantum Cryptography and Quantum Optics) and movies (which is identical to the Movies section of the web link).

Material to be listed on these pages can be submitted via the usual data submission procedure and categorizing the node with the corresponding attributes. In that way, any web link, for instance, that is submitted with a Tag 'Movies' is automatically listed on that page.



[48] Hhttp://qurope.eu/qipcH
[49] Hhttp://qurope.eu/dbH
[50] Hhttp://qurope.eu/qipc/basicsH