

DELIVERABLE D3.4.5

FINAL REPORT ON DISSEMINATION ACTIVITIES

The central task of QUIE²T **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.

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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 list¹. 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 news² or jobs³ 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 Questions⁴.

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](http://qurope.eu/content/qurope-mailing-list)

² [Hhttp://qurope.eu/db/news](http://qurope.eu/db/news)

³ [Hhttp://qurope.eu/db/jobs](http://qurope.eu/db/jobs)

⁴ [Hhttp://qurope.eu/faq](http://qurope.eu/faq)

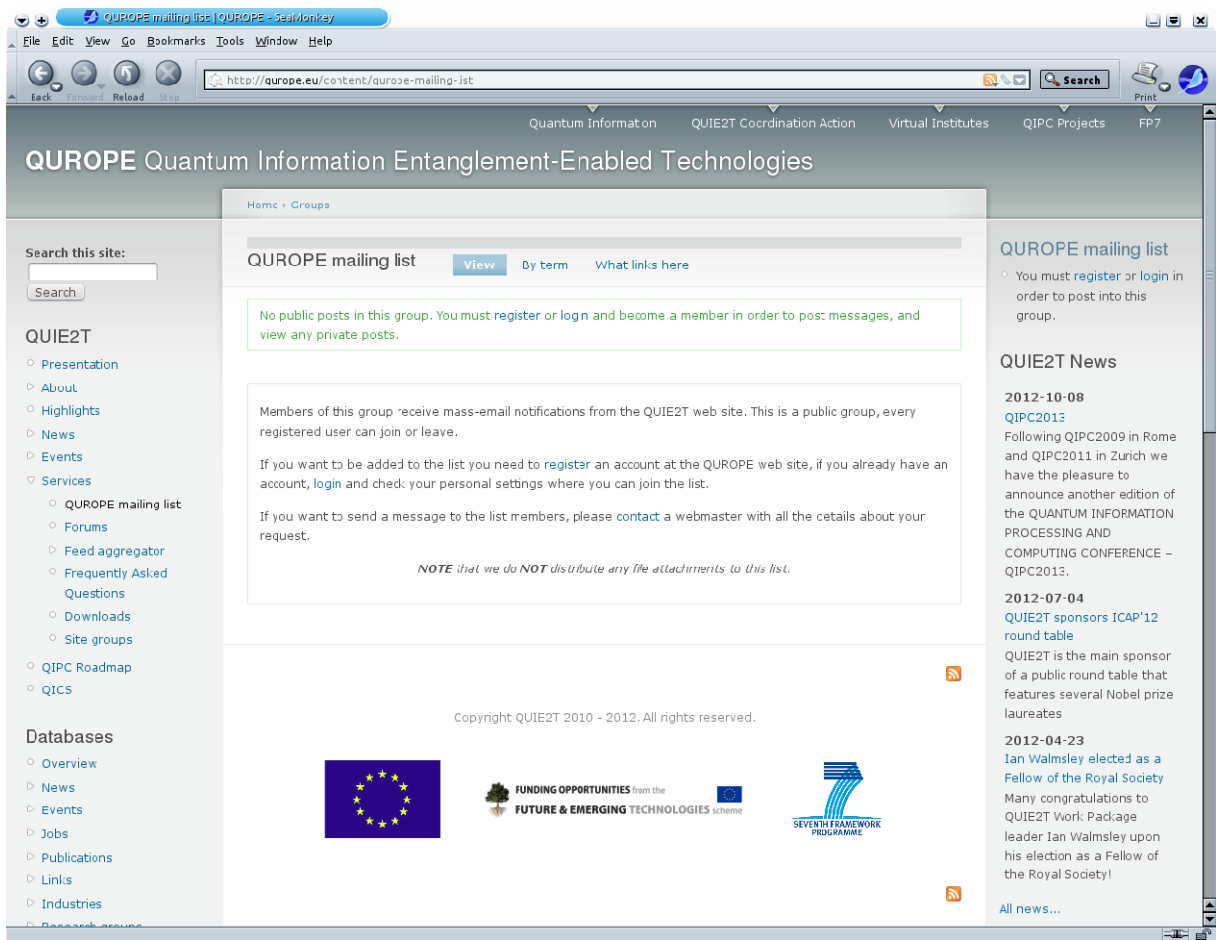


Fig. 1 The main page of the QUROPE mailing list.

[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.

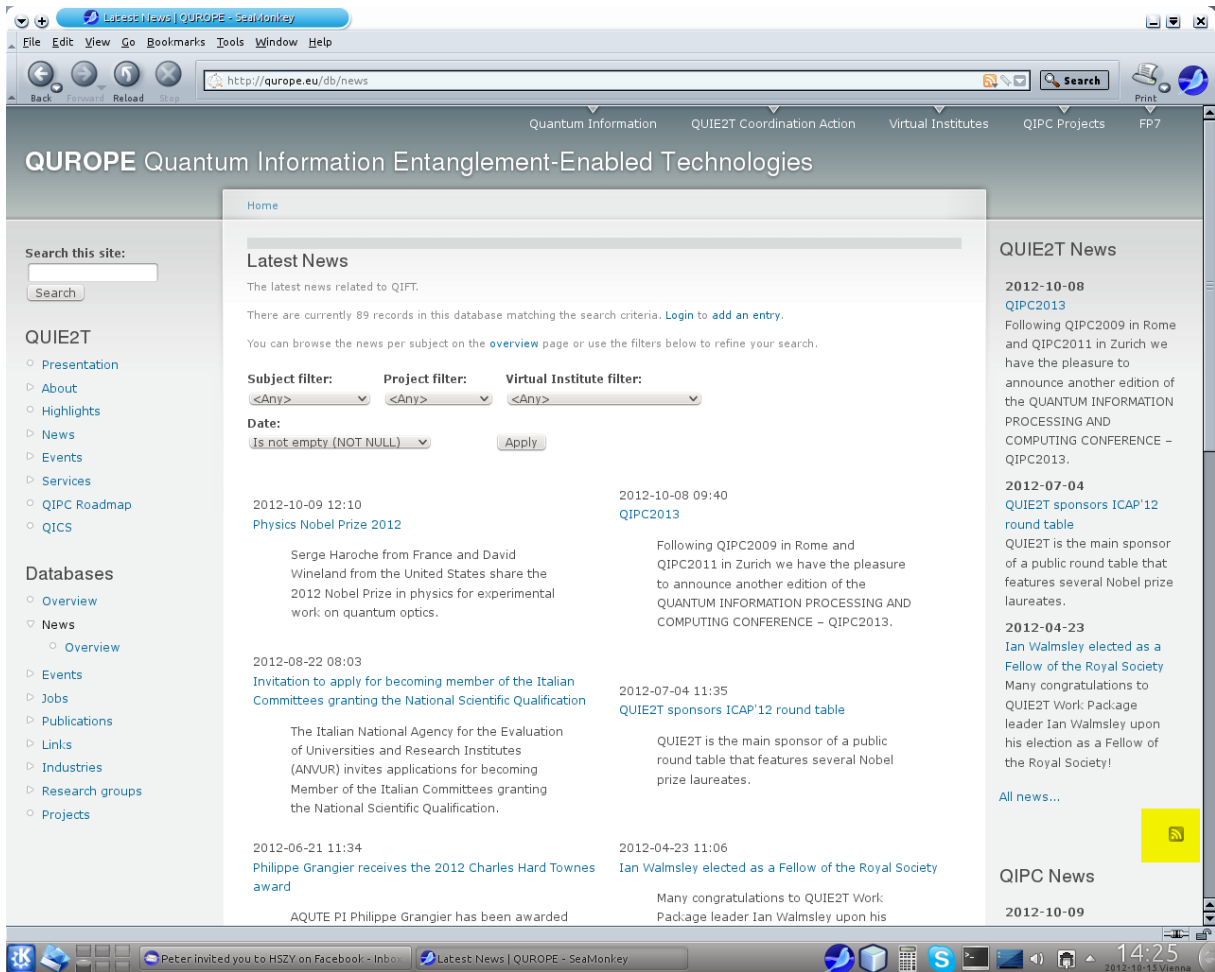


Fig. 3 Example of e feed icon, here for the QUIE²T news.

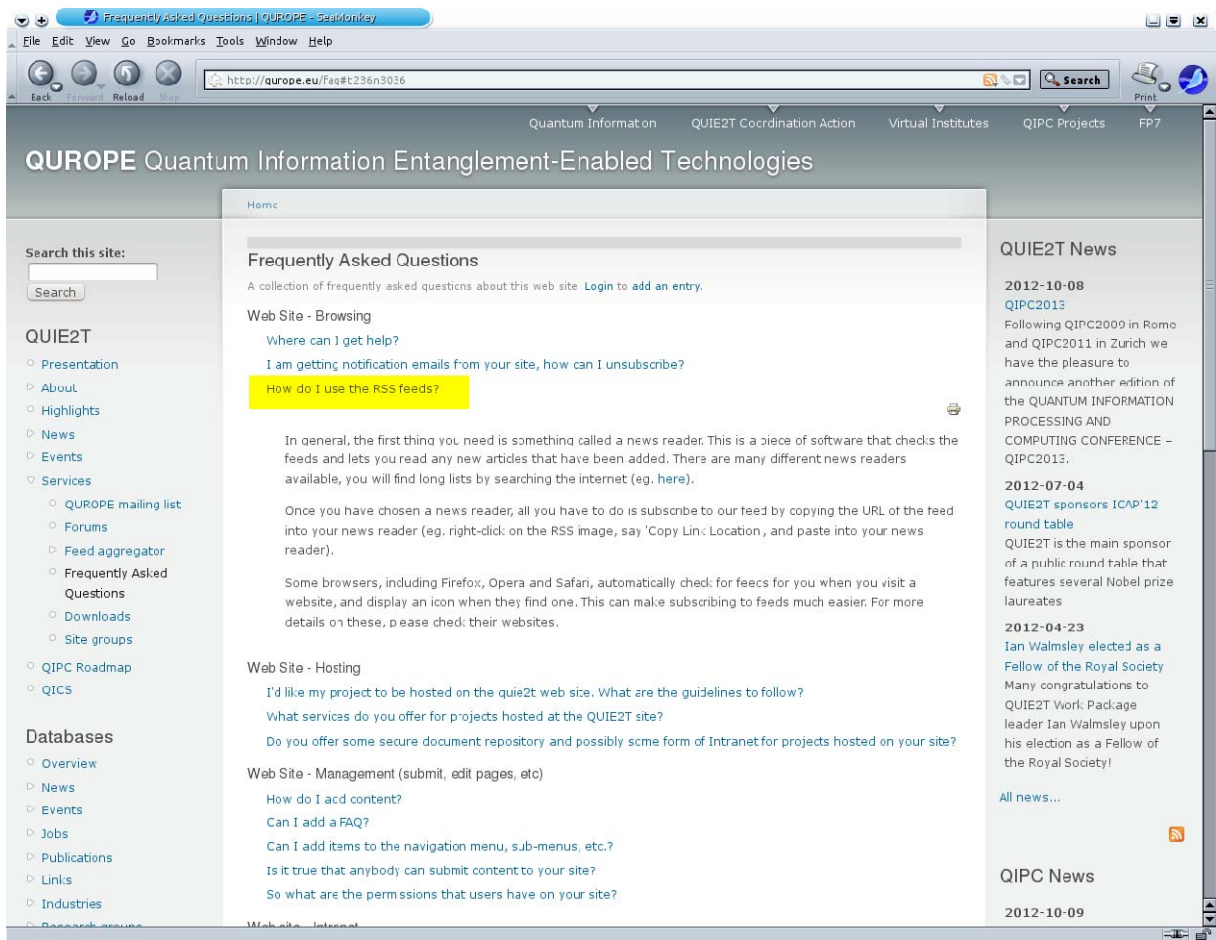


Fig. 4 Explanation of the RSS feed in the Frequently Asked Questions.

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 QUROPE⁵.

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](http://www.qurope.net/H)

CONTENT MANAGEMENT SYSTEM

The selected CMS for the web site is Drupal⁶, 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 capability 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.

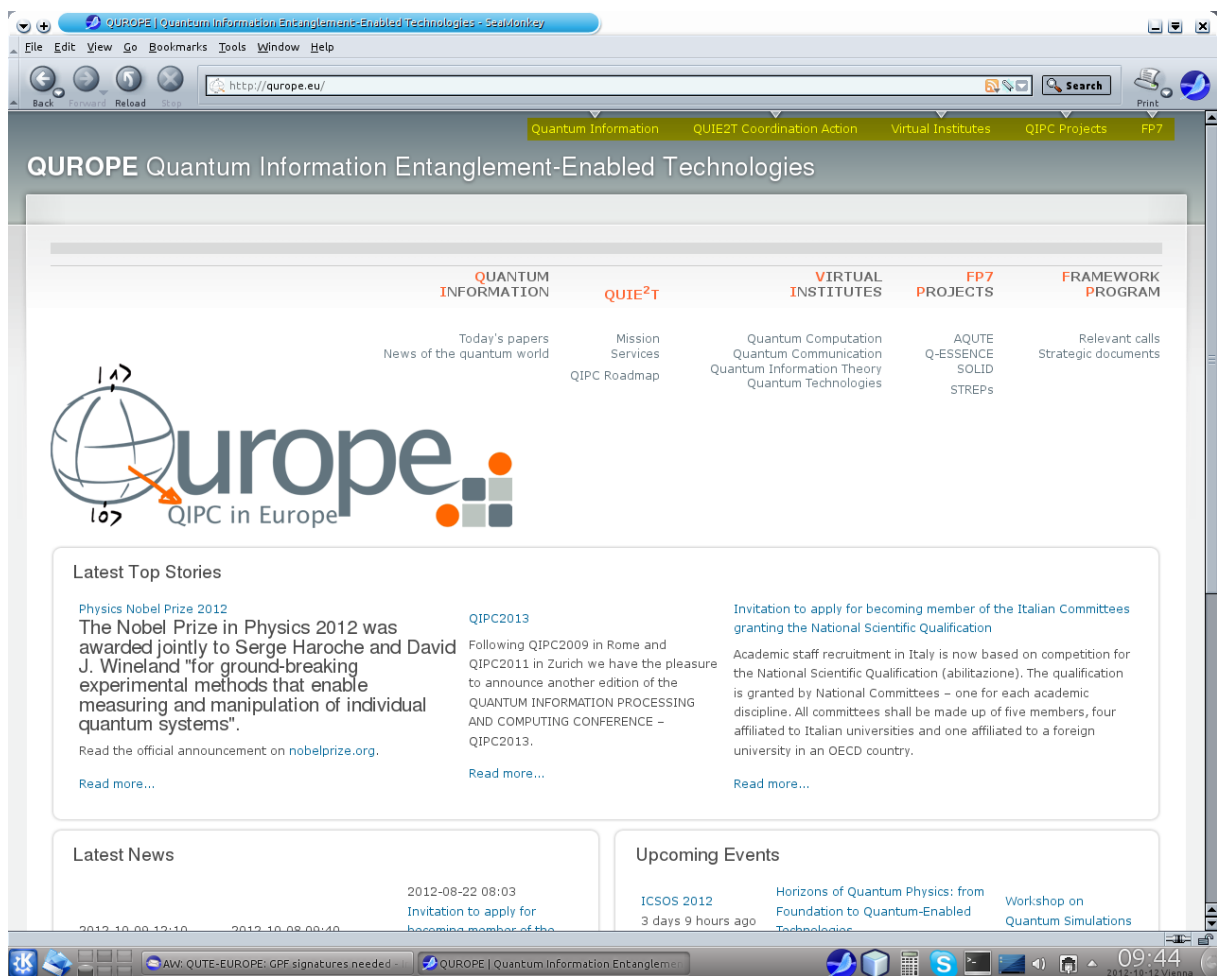
The standard release of Drupal, known as 'Drupal core', contains basic features common to content management systems. These include user account registration and maintenance, menu management, RSS feeds, page layout customization, and system administration. The Drupal

⁶ [Hhttp://drupal.org/](http://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 Information⁷: contains general, also specialized, material about QIPC-related issues
- QUIE2T Coordination Action⁸: specific to the QUIE²T CA that acts as a maintainer for the whole web portal
- Virtual Institutes⁹: contains material pertaining to the work of the four Virtual Institutes
- QIPC Projects¹⁰: the part of the web portal where other QIPC related projects may register
- FP7¹¹: 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](http://qurope.eu/qipc)

⁸ [Hhttp://qurope.eu/quie2t](http://qurope.eu/quie2t)

⁹ [Hhttp://qurope.eu/vi](http://qurope.eu/vi)

¹⁰ [Hhttp://qurope.eu/projects](http://qurope.eu/projects)

¹¹ [Hhttp://qurope.eu/fp7](http://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 page¹², 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).

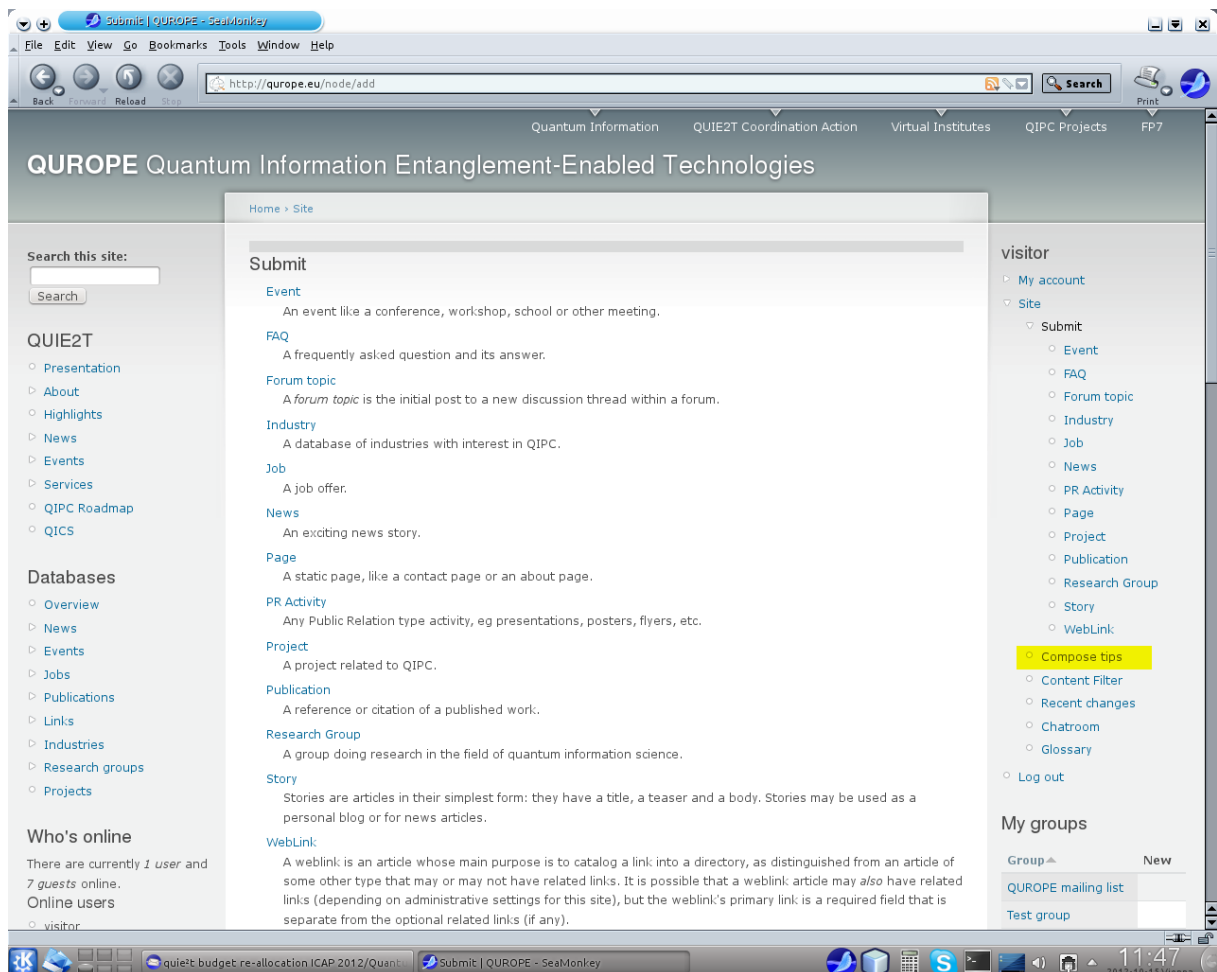


Fig. 5 The main page for data submission.

¹² [Hhttp://qurope.eu/node/add](http://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 an example the collection of QIPC projects¹³.

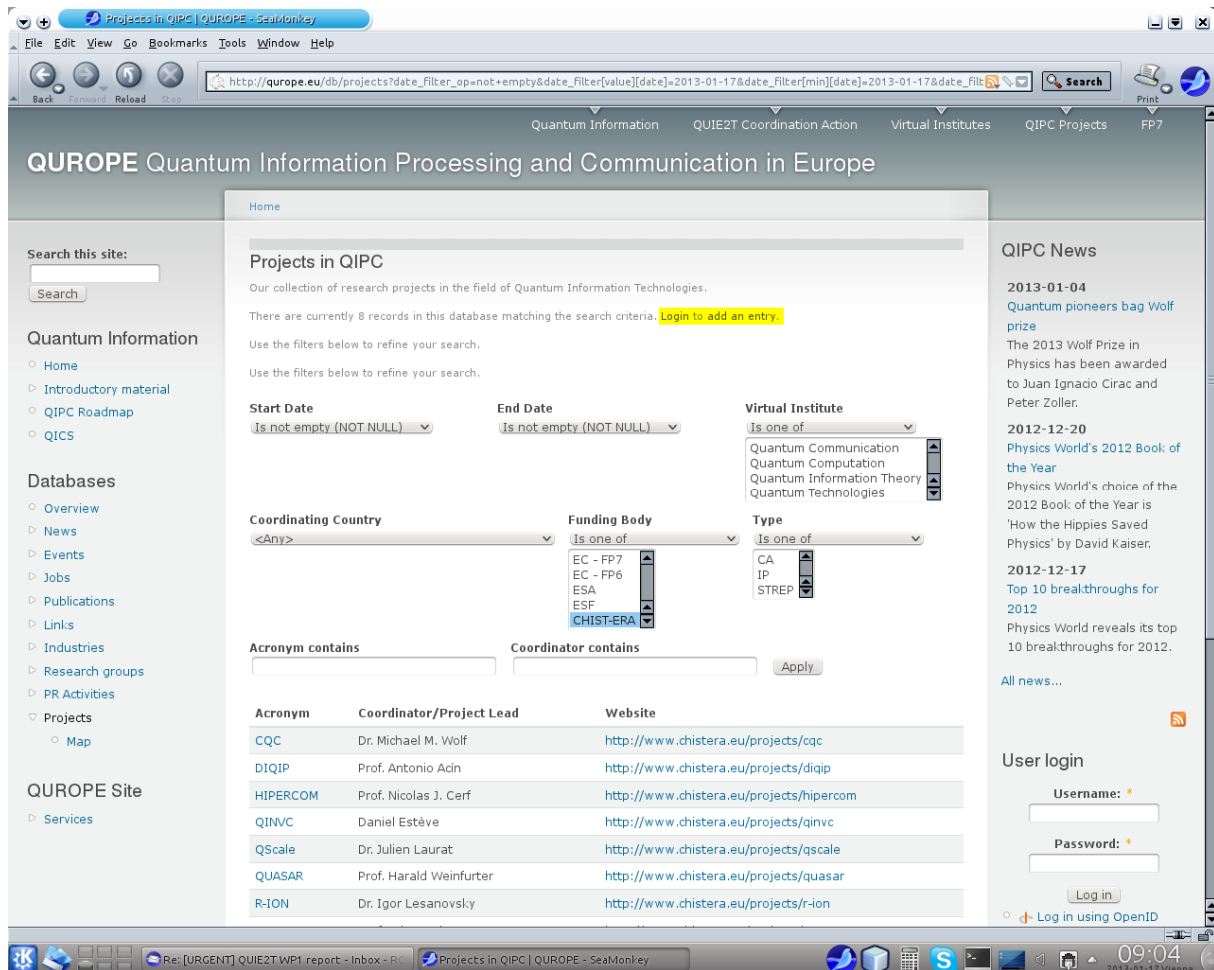


FIG. 6 EXAMPLE OF A LINK FROM THE DATABASE COLLECTION TO THE DATA SUBMISSION PAGE,

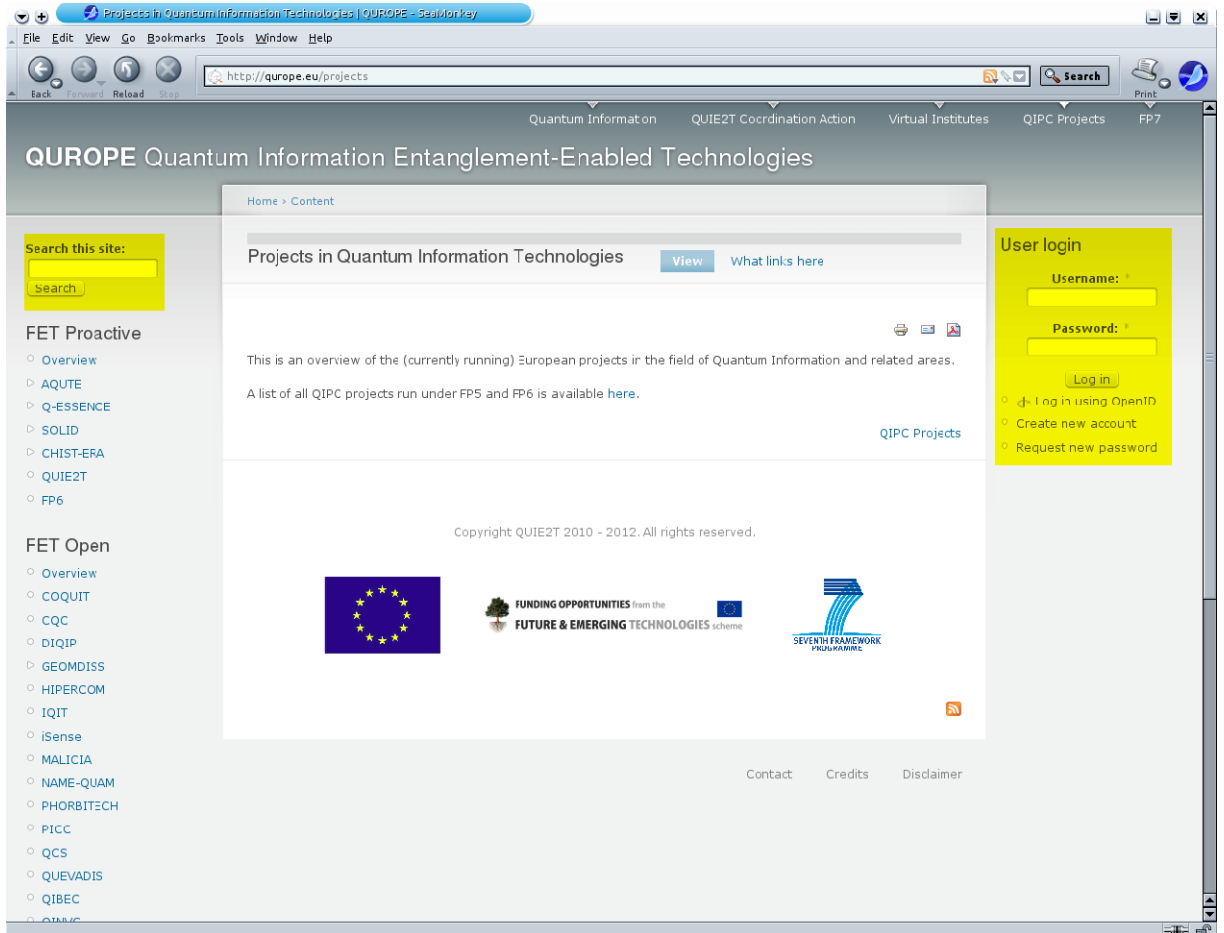
Different data types offer the choice of various attributes to be specified during submission, some of which are required (indicated by a red asterisk), others are optional. These attributes can be modified any time later by editing the node (i.e. the submitted data type), and are used for filtering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

- A huge collection of relevant data bases¹⁴, 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/projects](http://qurope.eu/db/projects)H

¹⁴ [Hhttp://qurope.eu/db](http://qurope.eu/db)

- Search function



- Discussion forums¹⁵, publicly available (only registered users can participate).

The screenshot shows the QUROPE forum website. The main header reads "QUROPE Quantum Information Entanglement-Enabled Technologies". Below the header, there is a navigation menu with items like "Quantum Information", "QUIE2T Coordination Action", "Virtual Institutes", "QIPC Projects", and "FP7".

The central content area is titled "Forums" and includes a login prompt: "Login to post new content in the forum." Below this is a table listing various forums:

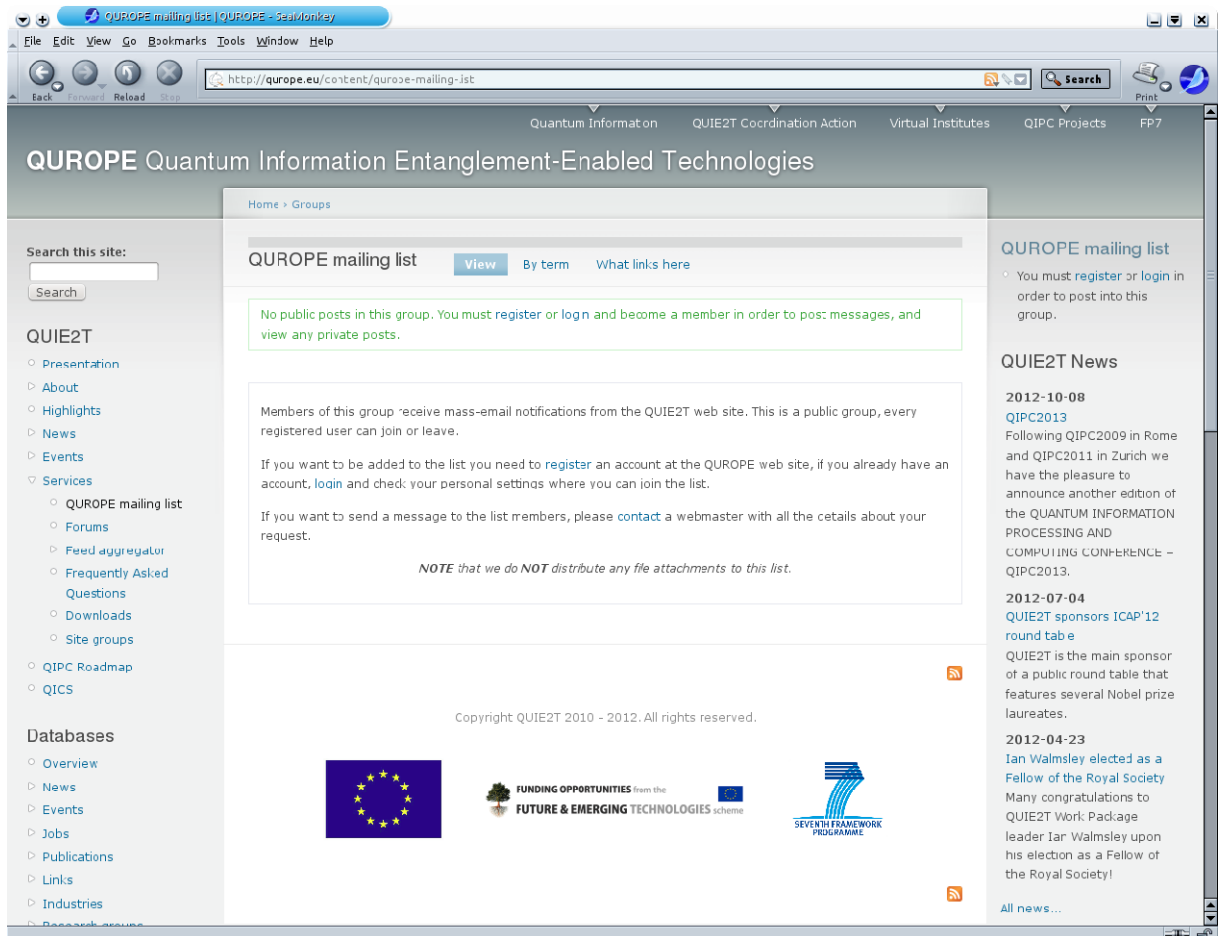
Forum	Topics	Posts	Last post
QUIE2T Public Forum General discussion forum for QUIE2T related subjects (schools, conferences, coordination...).	5	6	1 week 1 day ago by ltheussl
AQUTE			
General discussion	0	0	n/a
AQUTE general documents			
General discussion	0	0	n/a
AQUTE Integration Fund			
General discussion	0	0	n/a
AQUTE Joint Collaborative Tasks			
General discussion	0	0	n/a
AQUTE Management report			
General discussion	0	0	n/a
AQUTE P10-LENS			
General discussion	0	0	n/a
AQUTE P11-LMU			
General discussion	0	0	n/a
AQUTE P12-TUWIEN			

On the left side, there is a sidebar with a search box and a menu for "QUIE2T" (Presentation, About, Highlights, News, Events, Services) and "Databases" (Overview, News, Events, Jobs, Publications, Links, Industries).

On the right side, there are news sections: "QUIE2T News" with dates like "2012-10-08 QIPC2013" and "2012-07-04 QUIE2T sponsors ICAP'12 round table", and "QIPC News" with a date "2012-10-09".

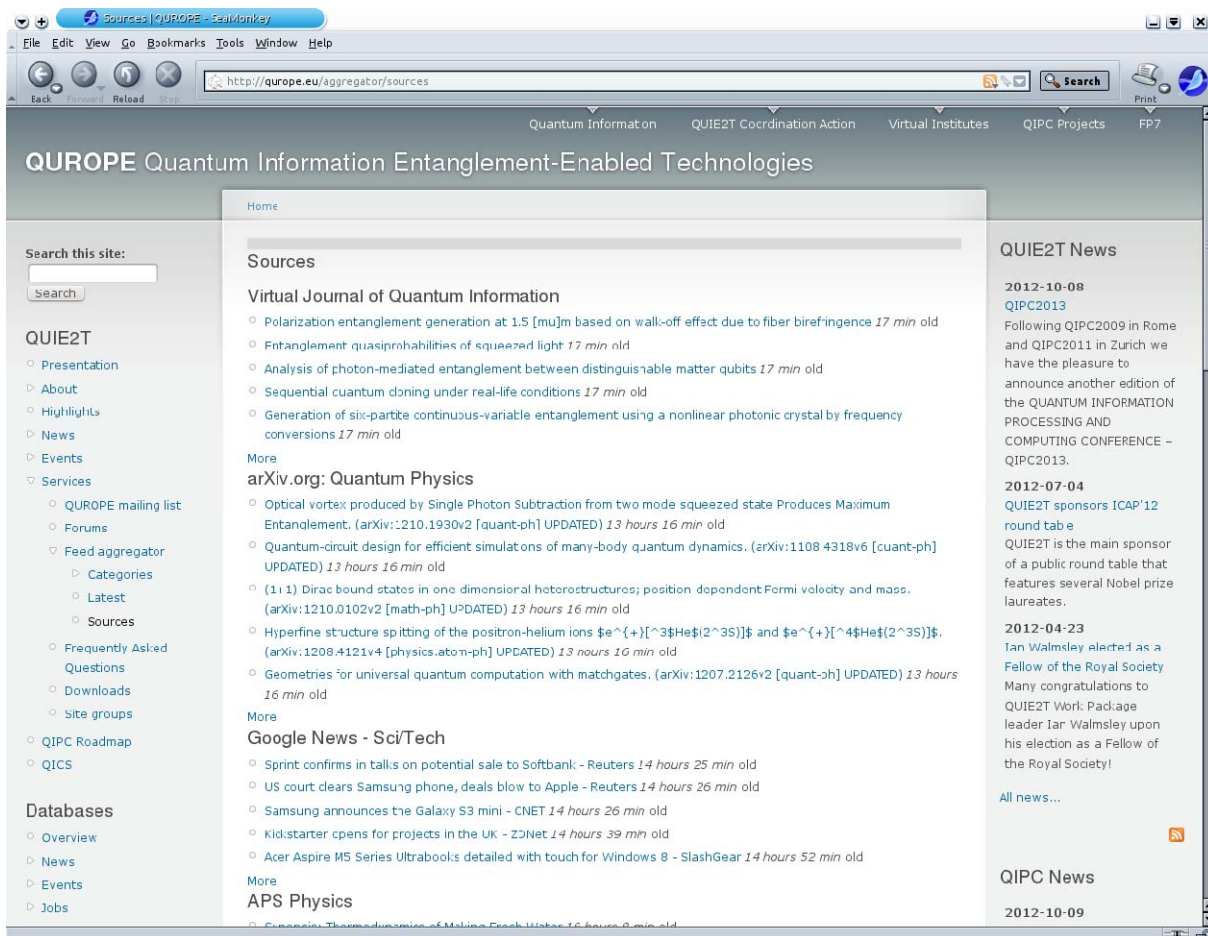
¹⁵ <http://qurope.eu/forum>

- On-line maintenance of the QUROPE mailing list¹⁶, any registered user is automatically subscribed to the list.



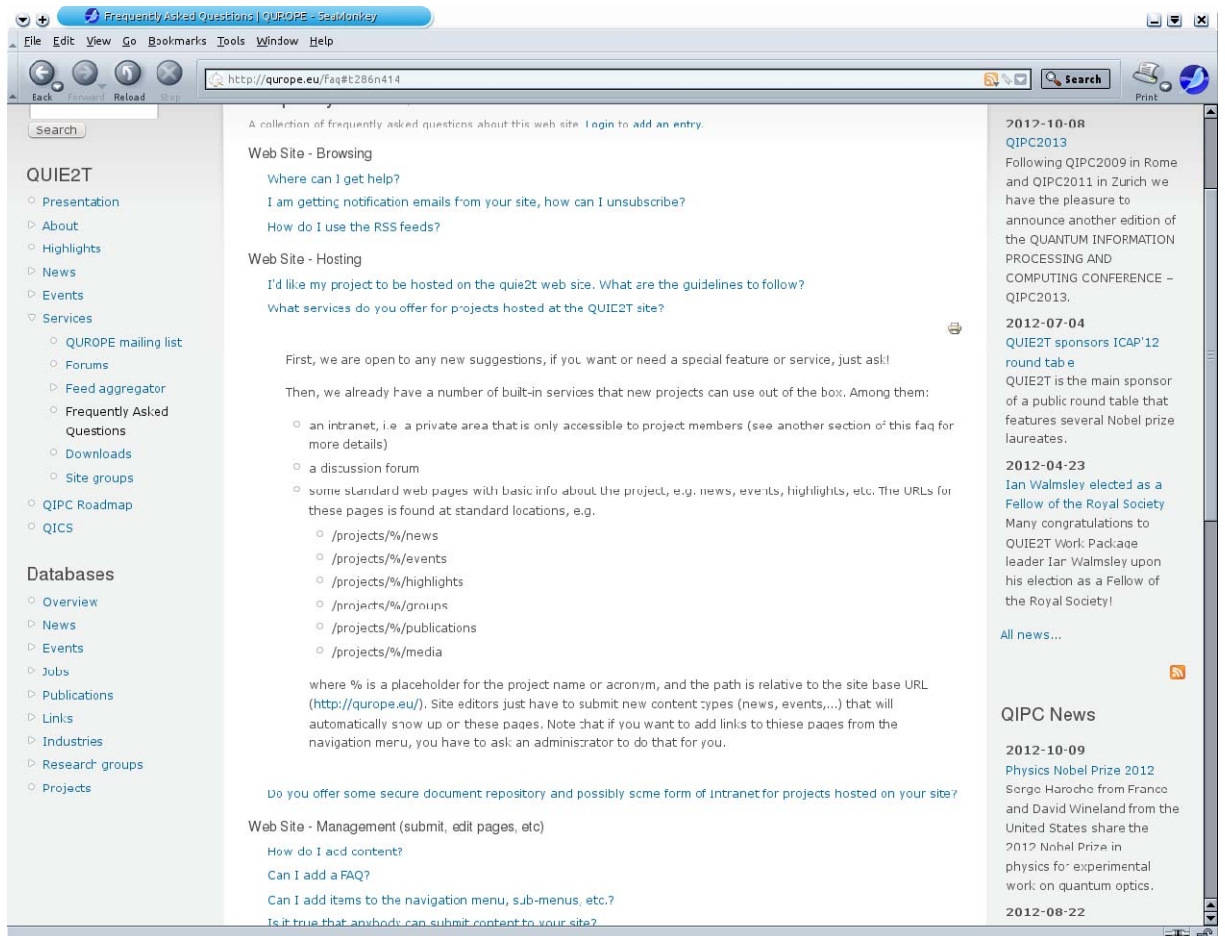
¹⁶ <http://qurope.eu/content/qurope-mailing-list>

- Collection of news feeds¹⁷ from interesting sites.



¹⁷ <http://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 Roadmap¹⁸ is maintained on the QUIE²T web site, both its web and printable form. A printable pdf version can be obtained directly from the web source.

Quantum Information Processing and Communication: Strategic report on current status, visions and goals for research in Europe

Version 1.7, April 2010

Roadmap committee members

R. Blatt (Innsbruck)	J. Kempe (Orsay)	A. Sergienko (Boston)
H. Briegel (Innsbruck)	L. Kouwenhoven (Delft)	D. Suter (Dortmund)
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Quantum Information Processing and Communication: Strategic report on current status, visions and goals for research in Europe

- Table of Content
- 1. Executive Summary
- 2. Introduction: The major vision and goals of QIPC
- 3. Different aspects of QIPC research in Europe
- 4. Assessment of current results and outlook on future efforts

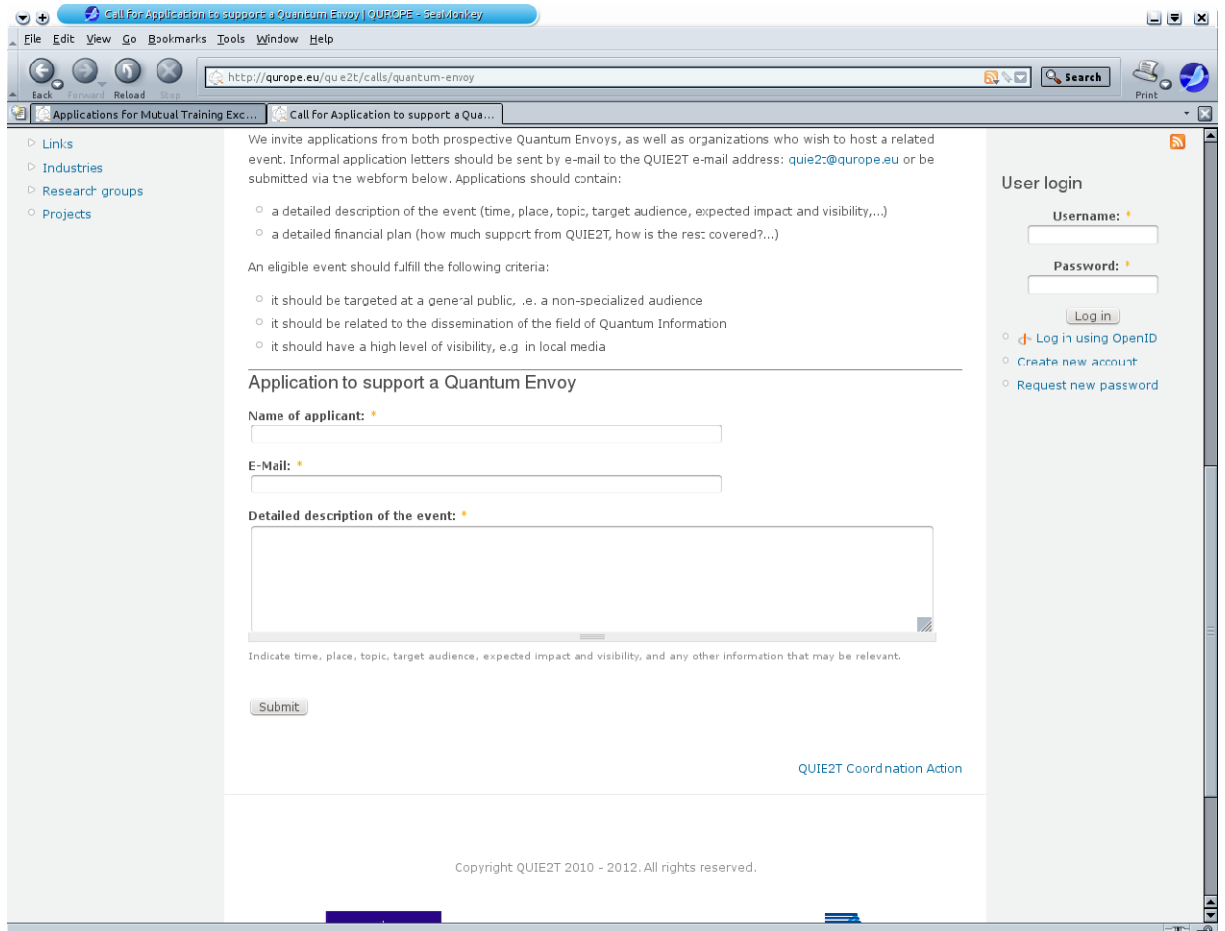
QUIE2T News

2012-10-08
QIPC2013
Following QIPC2009 in Rome and QIPC2011 in Zurich we have the pleasure to announce another edition of the QUANTUM INFORMATION PROCESSING AND COMPUTING CONFERENCE - QIPC2013.

2012-07-04
QUIE2T sponsors ICAP'12 round table

¹⁸ <http://quope.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 conference¹⁹), or for other application gathering (e.g. like the SOLID project for its training activities²⁰). It is also used on the application page for the QUIE²T Quantum Envoy²¹.

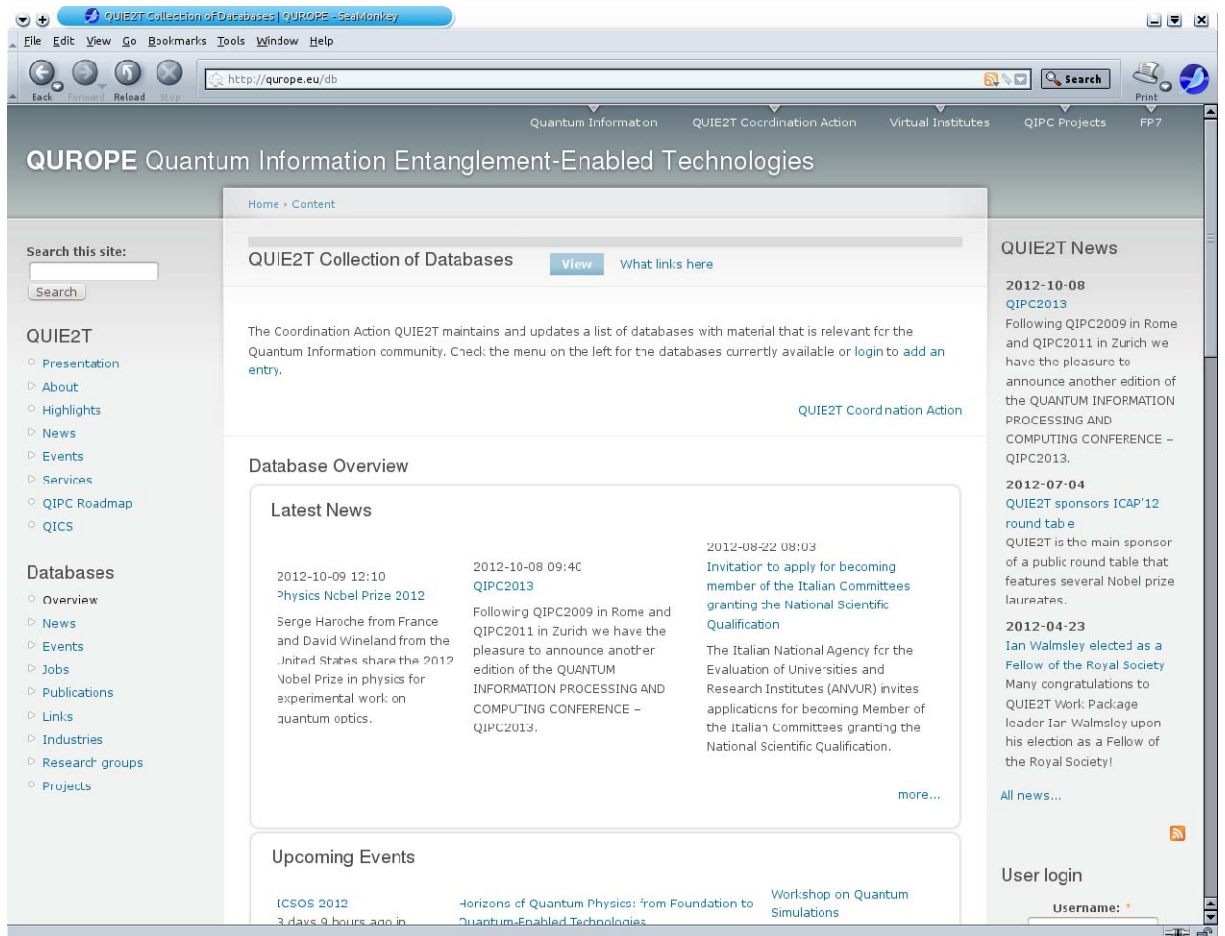


¹⁹ [Hhttp://querope.eu/projects/chist-era/1st-chist-era-conference](http://querope.eu/projects/chist-era/1st-chist-era-conference)

²⁰ [Hhttp://querope.eu/content/applications-mutual-training-exchange](http://querope.eu/content/applications-mutual-training-exchange)

²¹ [Hhttp://querope.eu/quie2t/calls/quantum-envoy](http://querope.eu/quie2t/calls/quantum-envoy)

- An overview page for the database collection14 with automatic updates for latest additions.



- Ability to filter most databases by subjects and keywords.

The screenshot shows the QUROPE website interface. The main content area is titled "Events" and contains a collection of events related to QIFT. A search filter box is highlighted in yellow, showing the following filters:

- Subject filter: <Any>
- Project filter: <Any>
- Virtual Institute filter: <Any>
- Date: Is greater than or equal to 2012-10-12 (Format: 2012-10-12)
- Country: <Any>

The table below lists the events:

Date	Name or Acronym	Conference/Workshop/Place
2012-10-09 - 2012-10-12	ICSOS 2012	Ajaccio, Corsica, France
2012-10-14 - 2012-10-18	Horizons of Quantum Physics: from Foundation to Quantum-Enabled Technologies	Taipei, Taiwan
2012-10-22 - 2012-10-25	Workshop on Quantum Simulations	Bilbao, Spain
2012-10-24 - 2012-10-26	Quo Vadis, Quantum Hybridium?	Ischia, Italy
2012-11-01 - 2012-11-02	Quantum Science Symposium 2012	Cambridge, United Kingdom
2012-11-24 - 2012-11-26	Workshop of Quantum Dynamics and Quantum Walls	Olizaki Conference Center, Japan
2012-11-25 - 2012-11-28	519th WE-Heraeus-Seminar: Hybrid Quantum Systems	Bad Honnef, Germany
2012-12-17 - 2012-12-18	Topical Research Meetings on Physics: Quantum technologies: taking concepts through to implementations	London, UK

The right sidebar contains "QUIE2T News" and "QIPC News" sections, with news items dated 2012-10-08, 2012-07-04, and 2012-04-23.

- Browsable calendar for events²².

Calendar of events in October 2012

2012-10-01
Format: 2012-10-15
[Change date](#)

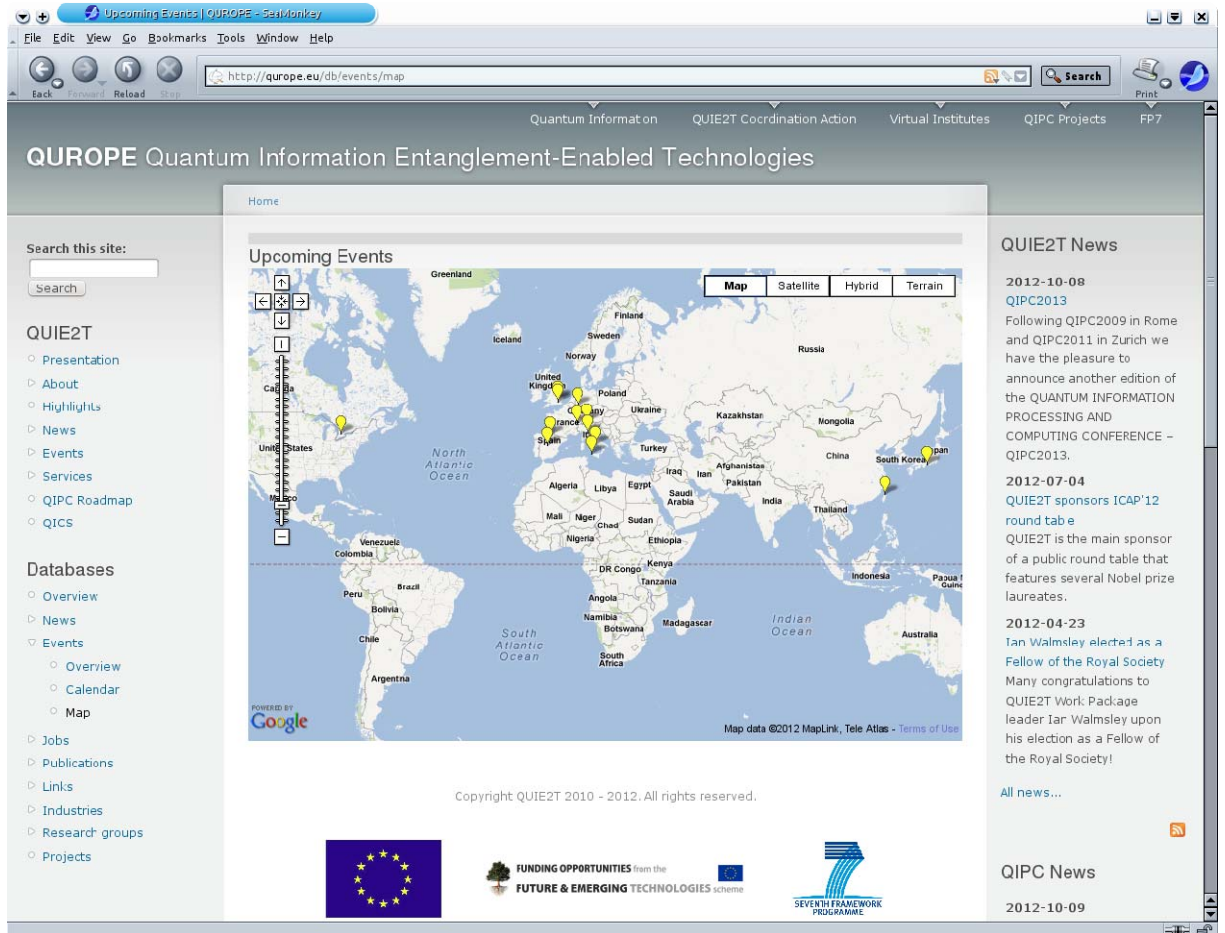
Year Month Week Day Add+

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
41	1	2	3	4	5	6	7
42	8 QuantumComm 2012	9 ICSOS 2012 QuantumComm 2012	10 ICSOS 2012 QuantumComm 2012	11 QuantumComm 2012 ICSOS 2012	12 ICSOS 2012	13	14 Horizons of Quantum...
43	15 Horizons of Quantum...	16 Horizons of Quantum...	17 Horizons of Quantum...	18 Horizons of Quantum...	19	20	21
44	22 Workshop on Quantum...	23 Workshop on Quantum...	24 Quo Vadis, Quantum... Workshop on Quantum...	25 Workshop on Quantum... Quo Vadis, Quantum...	26 Quo Vadis, Quantum...	27	28
45	29	30	31				

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²² <http://qurope.eu/db/events/calendar>

- Google maps for node types that support a geographic classification, in particular events²³ (see screenshot below), jobs²⁴, industries²⁵, research groups²⁶ and projects²⁷.



²³ [Hhttp://qurope.eu/db/events/map/](http://qurope.eu/db/events/map/)

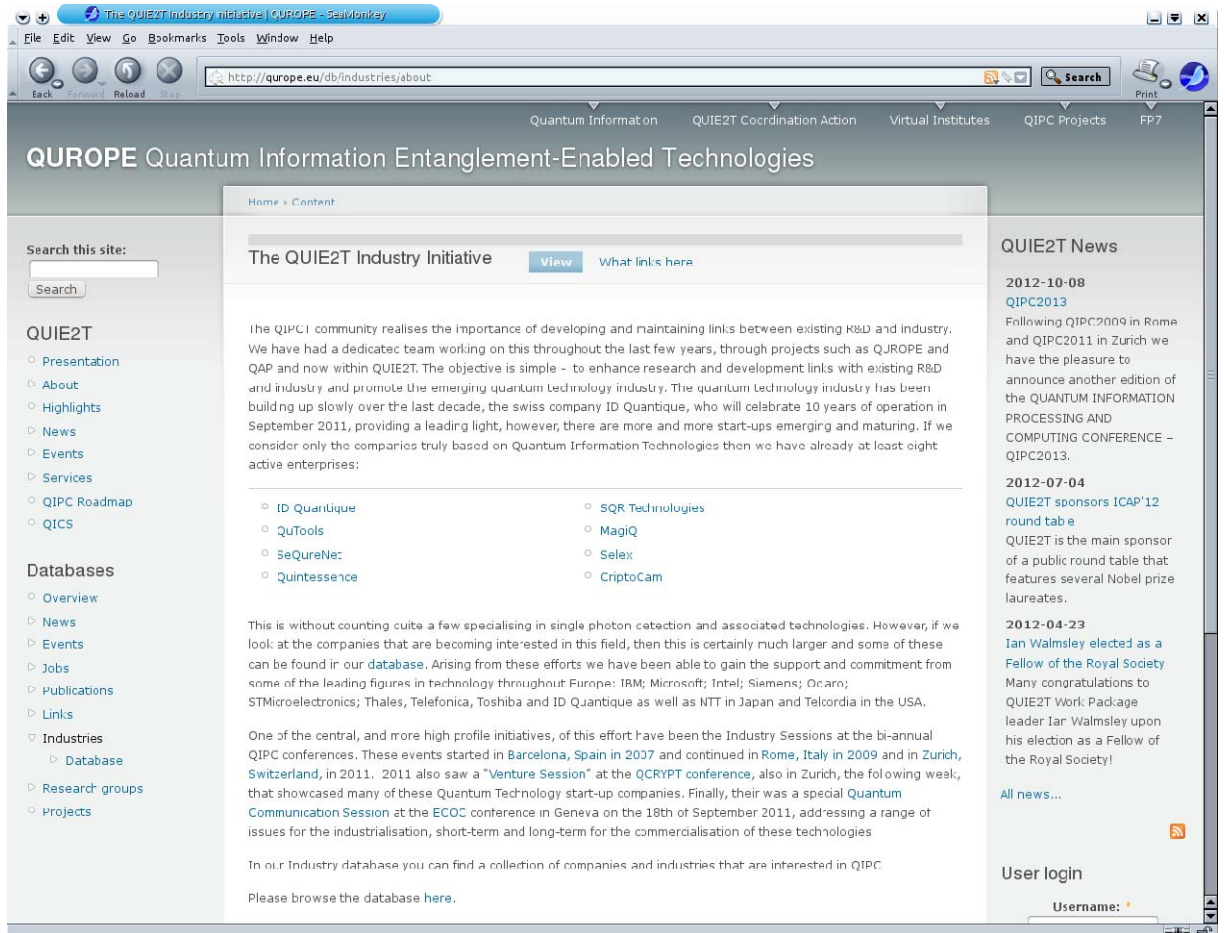
²⁴ [Hhttp://qurope.eu/db/jobs/map/](http://qurope.eu/db/jobs/map/)

²⁵ [Hhttp://qurope.eu/db/industries/mapH](http://qurope.eu/db/industries/mapH)

²⁶ [Hhttp://qurope.eu/db/groups/mapH](http://qurope.eu/db/groups/mapH)

²⁷ [Hhttp://qurope.eu/db/projects/mapH](http://qurope.eu/db/projects/mapH)

- An overview page for the industry database²⁸.



²⁸ <http://qurope.eu/db/industries/about>

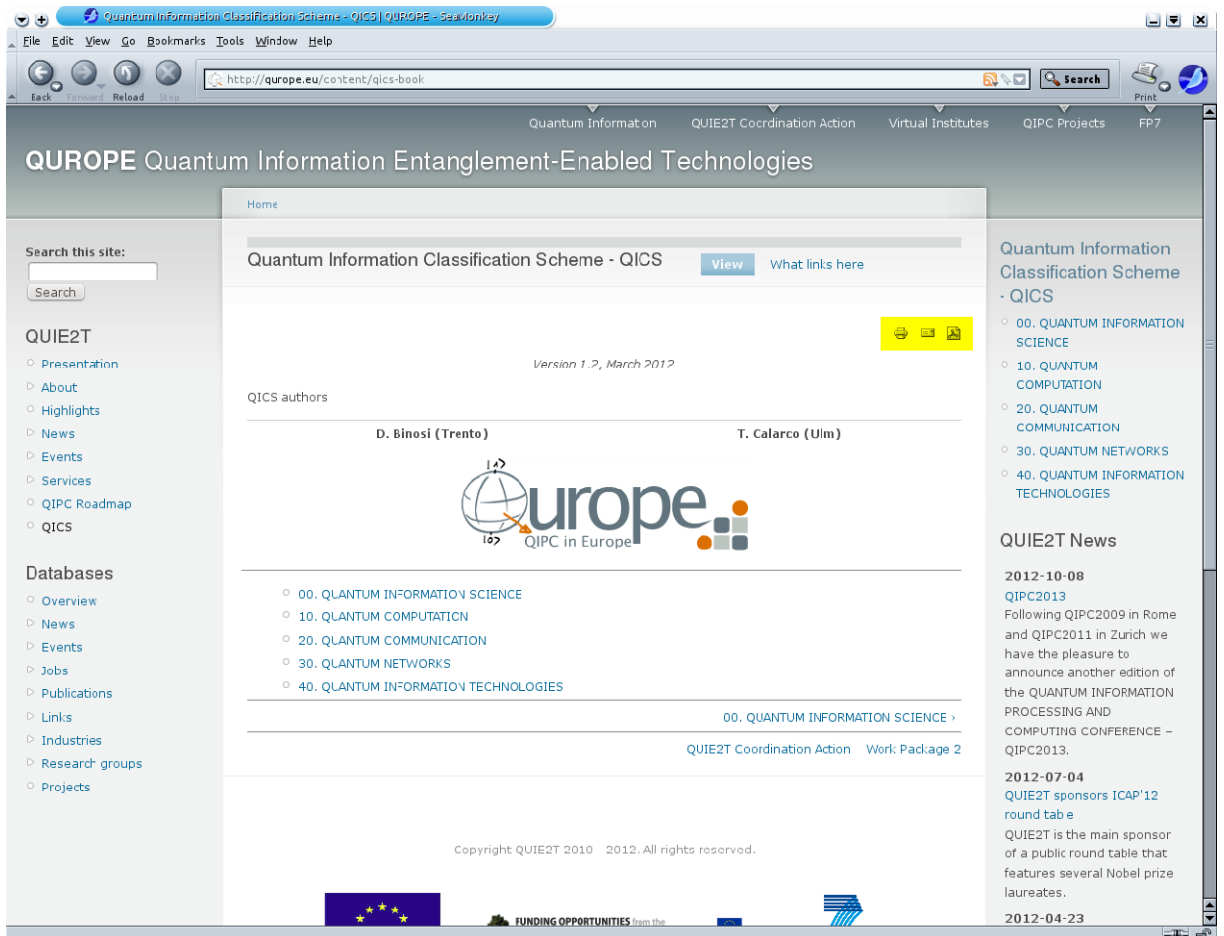
- A page to show the contact information for all the research groups in the database²⁹ (with additional information for authorized users, e.g. email addresses are only shown to users with corresponding permission). The whole set of contact data can be directly exported to an XLS Excel style sheet using a small icon on bottom of the table.

The screenshot shows a web browser window displaying the 'Group contacts' page of the QUROPE website. The page has a search bar on the left and a navigation menu. The main content area contains a table of research groups with the following data:

Leader	Web page	Address
Andrea Fiore, Paul Koenraad	http://qurope.eu/content/quantum-photonics-photonics-anc-semiconductor-nanophysics	Photonics and Semiconductor Nanophysics, Eindhoven University P.O. Box 513 5600 MB Netherlands
Dr David Lucas, Prof. Andrew Steane	http://qurope.eu/content/ion-trap-quantum-computing-group	Clarendon Laboratory, Dept. of Atomic and Laser Physics Parks Road Oxford OX1 3PU United Kingdom
A. Vourdas	http://qurope.eu/content/intelligent-and-quantum-information-systems	Dept of Computing Bradford BD7 1DP United Kingdom
Adan Cabello	http://qurope.eu/content/seville-quantum-information-group	Departamento de Fisica Aplicada II Universidad de Sevilla Avda. Reina Mercedes 4 A Sevilla 41012 Spain
Jeremy J. Baumberg	http://qurope.eu/content/quantum-optoelectronics-and-nanophotonics	SNanoPhotonics Group, Kapitza Building Cavendish Laboratory J Thomson Avenue Cambridge CB3 0HE United Kingdom
Alberto Barchielli	http://qurope.eu/content/quantum-measurement-quantum-information-group	Mathematical Department Politecnico di Milano Piazza Leonardo da Vinci 32 Milano 20133 Italy

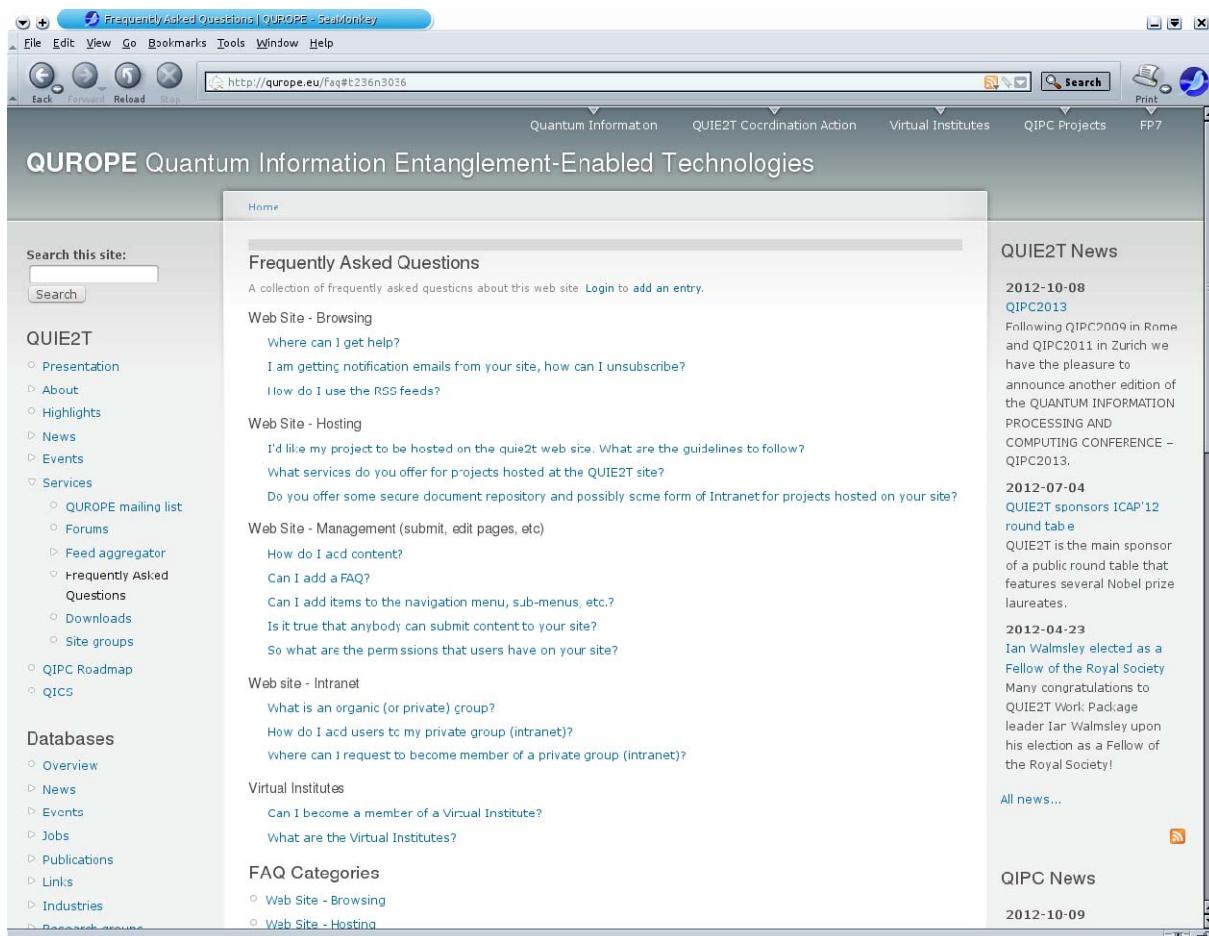
²⁹ http://qurope.eu/db/group_contacts/

- The Quantum Information Classification Scheme (QICS) is now maintained directly on the web site³⁰. A printable pdf version can be obtained directly from the web source.



³⁰ <http://qurope.eu/content/quantum-information-classification-scheme-qics/>

- A collection of Frequently Asked Questions³¹ (FAQ) to guide new users of the site.



³¹ <http://qurope.eu/faq/>

- A collection of introductory material to quantum information³².

The screenshot shows a web browser window displaying the QUROPE website. The address bar shows <http://qurope.eu/qipc/basics>. The page title is "QUROPE Quantum Information Entanglement-Enabled Technologies". The main content area is titled "Quantum information processing and communication basics" and includes a "View" button and a "What links here" link. The text on the page discusses the history of Quantum Information Processing and Communication (QIPC), mentioning the Einstein-Podolski-Rosen paper in 1935, John Bell's work in the 1960s, and the findings of Alain Aspect in the 1980s. It also mentions the quantum mechanical description of a regular Turing machine given by Paul Benioff in 1980, and the work of Richard Feynman, Peter Shor, and Stephen Wiesner.

³² [Hhttp://qurope.eu/qipc/basics/](http://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/>.

The screenshot shows a web browser window displaying the QUROPE website. The page title is "Publications related to the Virtual Institute of Quantum Computation | QUROPE - SeaMonkey". The URL in the address bar is "http://qurope.eu/vi/q-comp/publications". The website header includes "QUROPE Quantum Information Entanglement-Enabled Technologies" and navigation links for "Quantum Information", "QUIE2T Coordination Action", "Virtual Institutes", "QIPC Projects", and "FP7".

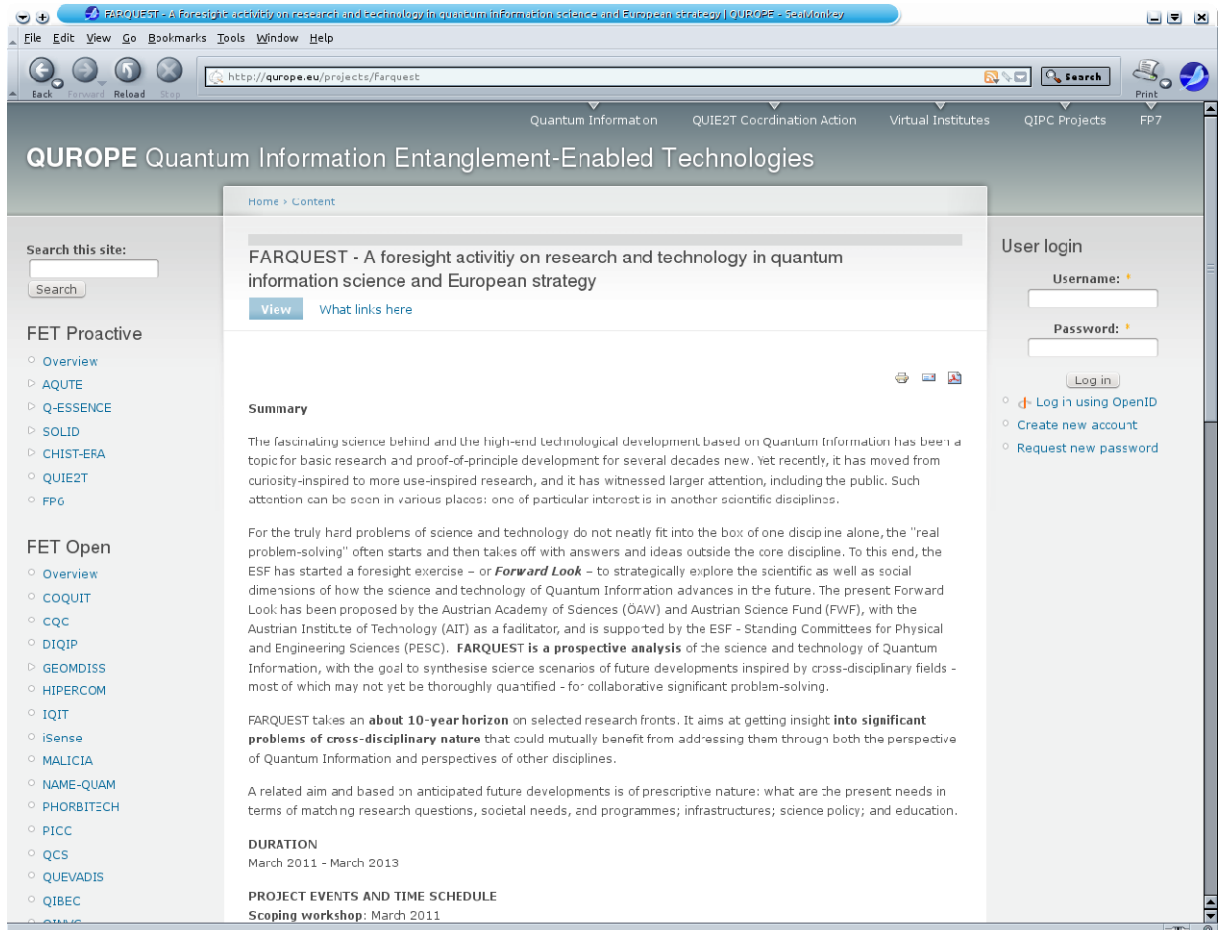
On the left side, there is a search bar and a navigation menu for "Virtual Institutes" with sub-items: Overview, Quantum Communication, Quantum Computation (with sub-items: Affiliated groups, News, Publications, Events, Highlights), Quantum Information Theory, and Quantum Technologies.

The main content area is titled "Publications related to the Virtual Institute of Quantum Computation" and lists several recent publications:

- Prospects for fast Rydberg gates on an atom chip**
M. M. Müller, H. R. Haakh, T. Calarco, C. P. Koch and C. Henkel
Quantum Inf. Process. 10, 771 (2011). From the issue entitled "Special Issue on Neutral Partides".
<http://www.springerlink.com/content/322129714084v168/>
- Implementing the Quantum von Neumann Architecture with Superconducting Circuits**
Matteo Mariantoni, H. Wang, T. Yamamoto, M. Haelely, Radoslaw C. Bialczak, Y. Chen, M. Lenander, Erik Lucero, A. D. O'Connell, D. Sank, M. Weides, J. Wenner, Y. Yin, J. Zhao, A. H. Kozyrova, A. H. Cleland, John M. Martinis
Science Vol. 334 no. 6052 pp. 61-65. DOI: 10.1126/science.1208517
<http://www.sciencemag.org/content/334/6052/61.abstract>
- Optimizing entangling quantum gates for physical systems**
M. M. Müller, D. M. Reich, M. Murphy, H. Yuan, J. Vala, K. B. Whaley, T. Calarco, C. P. Koch
Phys. Rev. A 84, 042315 (2011).
<http://pra.aps.org/abstract/PRA/v84/i4/e042315>
- Entanglement Storage Units**
T. Caneva, T. Calarco, S. Montangero
arXiv:1108.3200v1
<http://lanl.arxiv.org/abs/1108.3200>
- The quantum speed limit of optimal controlled phasegates for trapped neutral atoms**
M. H. Goerz, T. Calarco, C. P. Koch
J. Phys. B: At. Mol. Opt. Phys. 44, 154011 (2011)
<http://iopscience.iop.org/0953-4075/44/15/154011>
- Optimal Control Technique for Many-Body Quantum Dynamics**
P. Doria, T. Calarco, S. Montangero
Phys. Rev. Lett. 106, 190501, (2011)
- Staying adiabatic with unknown energy gap**
J. Mehrhorn, S. Montangero, A. Ekert, A. Smerzi, R. Fazio, T. Calarco

On the right side, there is a "Latest News" section with entries for 2011-09-26 (UNIBAS as a new partner in the AQUTE Consortium) and 2010-09-09 (CHIST-ERA - Call open). Below this is a "User login" section with fields for "Username:" and "Password:" and a "Log in" button.

- A collection with associated filter abilities of currently open FP7 calls³³.
- The EC-FP7 projects GEOMDISS³⁴ and QUAINT³⁵ 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 site³⁶.



³³ [Hhttp://qurope.eu/fp7/callsH](http://qurope.eu/fp7/calls)

³⁴ [Hhttp://qurope.eu/projects/geomdissH](http://qurope.eu/projects/geomdiss)

³⁵ [Hhttp://qurope.eu/projects/quaintH](http://qurope.eu/projects/quaint)

³⁶ [Hhttp://qurope.eu/projects/farquestH](http://qurope.eu/projects/farquest)

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 Analytics³⁷, 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 [QUIE²T](#) home page 13028 times and the [SOLID](#) home page 8031 times.

³⁷ <http://www.google.com/analytics/>

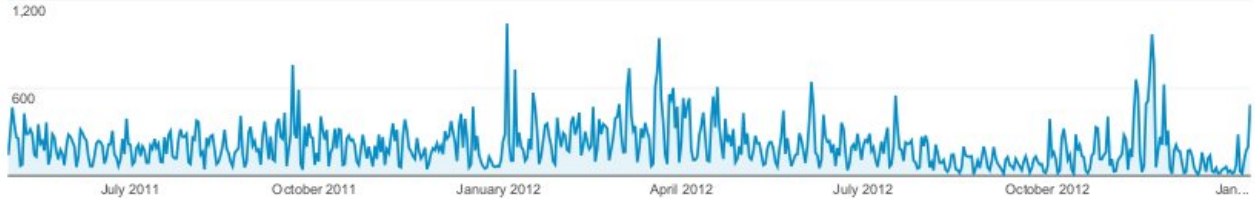
Pages

% of pageviews: 100.00%

Explorer

Site Usage

Pageviews



Pageviews 127,248 % of Total: 100.00% (127,248)	Unique Pageviews 92,120 % of Total: 100.00% (92,120)	Avg. Time on Page 00:01:08 Site Avg: 00:01:08 (0.00%)	Entrances 35,766 % of Total: 100.00% (35,766)	Bounce Rate 61.04% Site Avg: 61.04% (0.00%)	% Exit 28.11% Site Avg: 28.11% (0.00%)	Page Value \$0.00 % of Total: 0.00% (\$0.00)
---	--	---	---	---	--	--

Page	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit	Page Value
1. /	6,812	5,131	00:01:33	3,443	46.65%	39.49%	\$0.00
2. /db/jobs	5,772	4,323	00:01:06	1,650	60.06%	42.43%	\$0.00
3. /projects/aquite	3,963	2,359	00:00:48	1,697	41.90%	25.13%	\$0.00
4. /quie2t	3,411	2,345	00:01:01	1,300	29.38%	17.80%	\$0.00
5. /projects/qessence	3,122	2,166	00:00:59	1,669	50.15%	37.35%	\$0.00
6. /projects/solid	1,854	1,253	00:00:55	853	60.26%	37.38%	\$0.00
7. /quie2t/about	1,115	671	00:01:12	26	23.08%	6.64%	\$0.00
8. /content/Roadmap	1,080	631	00:01:16	203	40.39%	23.89%	\$0.00
9. /qipc	1,046	696	00:00:34	75	45.33%	13.48%	\$0.00
10. /db/events	927	597	00:01:25	210	54.29%	19.09%	\$0.00

Rows 1 - 10 of 8983

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 QUIE²T web site³⁸.

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 QUIE²T 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 QUIE²T 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 <http://qurope.eu/quie2t/wp1/deliverables>

- 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 2010³⁹ 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 QUIE²T exhibit⁴⁰ 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 QUIE²T 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 http://ec.europa.eu/information_society/events/ict/2010/index_en.htm

⁴⁰ http://ec.europa.eu/information_society/events/cf/ict2010/item-display.cfm?id=2988



FET'11, BUDAPEST

QUIE²T was represented at the Commission's *fet11* conference taking place from 4 to 6 of May in Budapest⁴¹. 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 QUIE²T representative Dr. Kamna Pruvost along with teams from VQC, Vienna led by Professor Markus Aspelmeyer⁴² and from Stuttgart led by Professor Prof. Dr. Jörg Wrachtrup⁴³ 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 *fet11* 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.

The screenshot shows the website for the European Future Technologies Conference and Exhibition (fet11). The main content area features a video player titled "Exploring the Quantum world: from Games to Diamond Qubits and Secure Quantum Communication". Below the video is a list of exhibition stands, each with a title, a name, and a number.

Stand:	Title	Name	Number
1	Brain-Computer Interaction	Prescott, Tony	22
2	Brain-Computer Interaction	Millan, Jose del R	1
3	Brain-Inspired Computing - Theory, Technology and Education	Kindler, Björn	14
4	Browsing the digital traces of science	Chavalarias, David	25
5	CyberRat: High Resolution Bi-directional Brain-Chip Interface	Vassanelli, Stefano	6
6	Diving into the Internet	Louçã, Jorge	26
7	Energy harvesting for powering wireless ICT devices	Gammaitoni, Luca	17
8	Exploring the Quantum world: from Games to Diamond Qubits and Secure Quantum Communication	Pruvost, Kamna	19
9	Fluorescence Digital Holographic Microscope for Biological Water safety Inspection System	Tótkés, Szabolcs	16
10	Frontiers of Nanoscale, Opto- and Electro-Mechanical Technologies	Aspelmeyer, Markus	20
11	Graphene based nanoelectronic devices	Neumaier, Daniel	21
12	Interview corner	Willers, Jennifer and Dunne, Stephen	29
13	Using Knowledge diversity-aware technologies	Maltese, Vincenzo	23
14	Energy harvesting for powering wireless ICT devices

⁴¹ <http://www.fet11.eu/>

⁴² <http://aspelmeyer.quantum.at/markus-aspelmeyer.2705.html>

⁴³ http://www.pi3.uni-stuttgart.de/index.php?article_id=53

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:

- 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

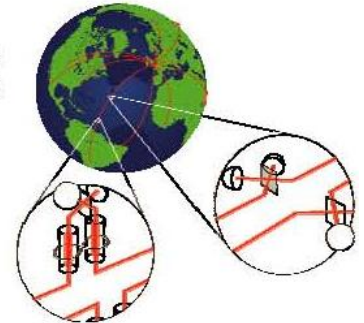
We all know diamond is an amazing material; it's even perfect for quantum computing! Qubits embedded in diamond are protected from noise, allowing operation in ambient conditions. These qubits are also the world's smallest magnetic sensors. Along with the University of Stuttgart we will showcase a millimetre-sized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



Quantum networks could span the globe providing ultrasecure telecoms

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 QUIE²T 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 QUIE²T work package leader Tommaso Calarco, who briefly explained the aim and the history of the activity, and hosted by QUIE²T 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 CLAVIS² (a QKD research platform).

PUBLIC TALKS

Some public talks by QUIE²T 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: QUIE²T Presentation at the FET Coordination Action Workshop, 26-27 October 2010 in Brussels. The presentation can be downloaded from the workshop web site⁴⁴.
- QUIE²T coordinator Vladimir Buzek has been selected to share his experiences about running a CA at the FET Proactive Information Day⁴⁵. 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 Agenda⁴⁶.

⁴⁴ [Hhttp://cordis.europa.eu/fp7/ict/fet-proactive/ca-ws-oct2010_en.html](http://cordis.europa.eu/fp7/ict/fet-proactive/ca-ws-oct2010_en.html)H

⁴⁵ [Hhttp://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan12_en.html](http://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan12_en.html)H

⁴⁶ [Hhttp://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan12-ag_en.html](http://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan12-ag_en.html)H

T3.5 TRAVELING PROFESSOR ‘QUANTUM ENVOY’

The QUIE²T ‘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 QUIE²T web site at

<http://quope.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 Bacher, 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 QUIE²T 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 Florence⁴⁷, to be organized this year.

⁴⁷ <http://www.cqstar.eu/QIPC/index.html>

The only application that was received in the first year of QUIE²T 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, QUIE²T was asked for a support of 6000 Euros, devoted to the organization of the Round Table.

The screenshot shows a web browser window displaying the ICAP 2012 website. The page features a navigation menu on the left, a main content area with sections for 'General conferences', 'Jazz evening', 'Free afternoon', and 'Conference dinner', and a right sidebar with 'Agenda' and 'Organisers' sections. The website header includes the ICAP 2012 logo, dates (23-27 July 2012), and location (Ecole Polytechnique, Palaiseau - France). The main content area also includes a section for 'General conferences' with a description of a special session and a round table event.

ICAP 2012
23-27 July 2012
Ecole Polytechnique
Palaiseau - France

The 23rd International Conference
on Atomic Physics

- Home
- Arrival information
- Invited speakers
- Programme
- Travel, support, visa
- Deadlines
- Registration fees
- Registration
- Accommodation
- Poster sessions
- Book of abstracts
- Special events
- Accompanying persons programme
- Trade exhibition
- Sponsors
- Conference proceedings
- Committees
- Satellite meetings
- Previous ICAPs
- ICAP Summer School

General conferences
A special session on Tuesday evening will be opened to a wider audience, beyond the CAP delegates.
First, a **round table** chaired by Jean Dalibard and entitled "The emergence of a new field, 1985-1995: from atom cooling and trapping to Bose-Einstein condensation" will gather major actors of atomic physics in the last decades, including 6 Nobel prize winners. It will be an opportunity to ask your questions to these great physicists. **This event is sponsored by the Quie2t Coordination Action.**
The round table will be followed by a **general conference** by Michel Spiro, president of the CERN Council, about the last exciting results at CERN. The title is: "LHC, CERN and the two infinities".

Jazz evening
After these two conferences, all the delegates are invited to participate in a free **jazz evening**, with a concert and a buffet. Enjoy Guillaume Petite's jazz band!

Free afternoon
Wednesday afternoon is free. You are encouraged to take this time to visit Paris or its surroundings, unless you prefer to have a look to the IFRAF labs. Tourist information will be available at the conference desk.

Conference dinner
The conference dinner will take place on Thursday night, in a wonderful abbey in the South of Paris. You will have the opportunity to taste the famous French food and wines. Don't forget to register to take part in this event, for which a financial participation is asked.

Agenda
February 2012 : Inscription opening
April 2012 : Early registration deadline
June 2012 : Late registration deadline

Organisers

IFRAF

The support of QUIE²T was acknowledged on the program and during the event, and QUIE²T 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 QUIE²T 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>.

The screenshot shows a web browser window displaying the ICAP 2012 website. The browser's address bar shows the URL: <http://www-lpl.univ-paris13.fr/icap2012/roundtable.htm>. The website header features the ICAP 2012 logo and the dates 23-27 July 2012, held at Ecole Polytechnique, Palaiseau - France. The main heading reads "The 23rd International Conference on Atomic Physics".

On the left side, there is a navigation menu with the following items:

- Home
- Arrival information
- Invited speakers
- Programme
- Travel, support, visa
- Deadlines
- Registration fees
- Registration
- Accommodation
- Poster sessions
- Book of abstracts
- Special events
- Round table
- Accompanying persons programme
- Trade exhibition
- Sponsors
- Conference proceedings
- Committees
- Satellite meetings
- Previous ICAPs
- ICAP Summer School

The main content area is titled "Tuesday Round Table" and includes the following text:

A round table chaired by Jean Dalibard and entitled "The emergence of a new field, 1985-1995: from atom cooling and trapping to Bose-Einstein condensation" gathered major actors of atomic physics in the last decades. A slide show with photographs of Jean-François Dars is available below. The round table was recorded by Eric Corsini. **This event was sponsored by the Quie2t Coordination Action.**

Below this text is a link: "Click on the poster to start the slide show." and a video player showing a photograph of four men seated at a round table. The video player has a timestamp of 01:00:17.

At the bottom of the video player, there is a quote:

It was one of these projects where everything seemed to getting better and better: Hydrogen, we thought, was the ideal gas, because its low mass, and has the highest temperature for BEC at a given density... We were delighted that hydrogen had a such a small scattering length, because we wanted something as close as possible to an ideal gas. The atoms were in the right direction. And then we came up against a brick wall.

On the right side of the page, there is an "Agenda" section with the following items:

- February 2012 : Inscription opening
- April 2012 : Early registration deadline
- June 2012 : Late registration deadline

Below the agenda is an "Organisers" section with the IFRAP logo.

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’.

The screenshot shows a web browser window with the URL <http://quantum-hybridium.spin.cnr.it/>. The page content includes a navigation menu on the left with links for Home, Venue, Topics, Invited Speakers, Deadlines, Abstract Submission, Registration, Programme, How to arrive, Tourist Information, and Reserved Area. The main content area features a 'Welcome to the satellite workshop:' section with the title 'QUO VADIS, QUANTUM HYBRIDIUM ? (IN MEMORIAM ANTONIO BARONE)' and the dates 'October 24th-26th, 2012'. A 'NEWS' box highlights that the CNR-SPIN Institute has organized the MAMA-Hybrids Workshop (October 22nd to 24th -2012) in conjunction with the 'Quo Vadis, Quantum Hybridium?' Satellite Workshop (October 24th-26th -2012). Key dates and events are listed: April 23rd 2012 (scientific registration open), May 8th 2012 (accommodation and site arrangements open), and October 1st 2012 (workshop programme available). The page also mentions co-organizers G. Kurizki and D. Esteve, contact information for the Scientific Secretariat (quantum-hybridium@spin.cnr.it) and Organizing Secretariat (info@froncessi.it), and a logo for 'uie²t. QIPC in Europe'. A yellow box at the bottom right states: 'This event is supported by the FP7 Coordination Action QUIET.' The browser's taskbar at the bottom shows the system clock as 11:03 on 2012-10-04 in Vienna.


Another event supported by the QUIE²T 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>



Department of Physics
Sharif University of Technology

Tutorial Lectures on Quantum Theory of Measurement



Vladimír Bužek

Research Center for Quantum Information, Slovak Academy of Sciences, Bratislava, Slovakia

In my tutorial lectures I will briefly outline some epistemological as well as operational problems associated with the quantum theory of measurement. I will address several topics including:

- **Basic concepts** - Why quantum measurements are so much different from classical observations?
- **Maximum entropy principle** - I will discuss how states of quantum systems can be reconstructed from incomplete experimental data when mean values of a limited number of the system observables are available from a measurement.
- **Quantum “clickology”** - I will show how information can be extracted from finite-size ensembles of identically prepared quantum systems. I will discuss the role of resources available in measurement. In particular, I will present quantum version of the Bayesian inference method.
- **Recycling of quantum information** - I will address a question whether one can extract some useful information from a quantum system that has already been measured.
- **Reconstruction of quantum channels** - I will also show how quantum channels can be reconstructed from incomplete experimental data.
- **Compression of quantum information** – I will analyse how classical information can be efficiently compressed and encoded into quantum systems.

Lecture 1	3 September 2012	16:00-17:30
Lecture 2	4 September 2012	14:00-15:30
Lecture 3	4 September 2012	16:00-17:30
Lecture 4	5 September 2012	10:30-12:00
Lecture 5	6 September 2012	10:30-12:00

Location: Room 412.
Department of Physics.
Sharif University of
Technology

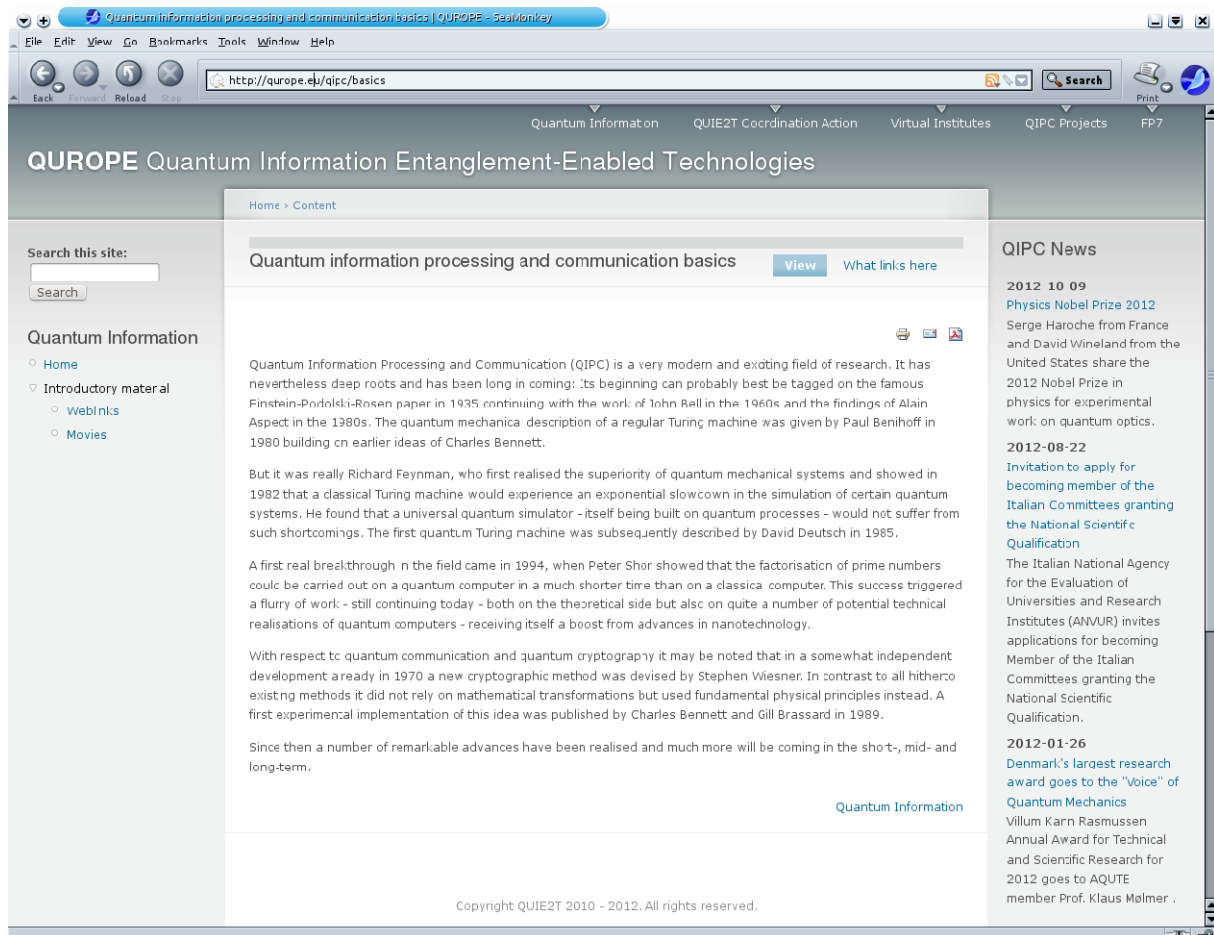
In summary, in order to evaluate the success of the ‘Quantum Envoy’ program and idea as a whole, it appears that one would need to take a more pro-active approach to make it work. Instead of waiving with the funds and waiting for applications, it seems more promising to approach concretely some candidates 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 QUIE²T web site⁴⁸. This part of the web site also hosts the collection of databases⁴⁹.

A collection of on-line background and learning material is available in this section⁵⁰. 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/qipc](http://qurope.eu/qipc)H

⁴⁹ [Hhttp://qurope.eu/db](http://qurope.eu/db)H

⁵⁰ [Hhttp://qurope.eu/qipc/basics](http://qurope.eu/qipc/basics)H