

## DELIVERABLE D3.2.3 MID-TERM WEB SITE UPDATE WITH INTEGRATION OF NEW FEATURES

Work on a web site has started already before the beginning of the project, and an operational web site was in place on day one 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 and harness 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.

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.

## Content Management System

The selected CMS for the web site is Drupal<sup>1</sup>, 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](http://whitehouse.gov) and [data.gov.uk](http://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

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<sup>1</sup> <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

The main web portal is currently divided into five domains<sup>2</sup>:

1. Quantum Information<sup>3</sup>: contains general, also specialized, material about QIPC-related issues
2. QUIE2T Coordination Action<sup>4</sup>: specific to the QUIE<sup>2</sup>T CA that acts as a maintainer for the whole web portal
3. Virtual Institutes<sup>5</sup>: contains material pertaining to the work of the four Virtual Institutes
4. QIPC Projects<sup>6</sup>: the part of the web portal where other QIPC related projects may register
5. FP7<sup>7</sup>: 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](http://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.

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<sup>2</sup> Some screenshots of these pages are given in the report on deliverable D3.2.1.

<sup>3</sup> <http://qurope.eu/qipc>

<sup>4</sup> <http://qurope.eu/quie2t>

<sup>5</sup> <http://qurope.eu/vi>

<sup>6</sup> <http://qurope.eu/projects>

<sup>7</sup> <http://qurope.eu/fp7>

## Current Features

The web site currently offers the following features<sup>2</sup>:

- An open registration service, any user can register and start submitting content to the site
- A huge collection of relevant data bases<sup>8</sup>, like news, events, jobs, publications, research groups, etc.
- Search function, revision control
- Discussion forums<sup>9</sup>, publicly available (only registered users can participate)
- On-line maintenance of the QUROPE mailing list<sup>10</sup>, any registered user is automatically subscribed to the list
- Collection of news feeds<sup>11</sup> from interesting sites
- A hosting service for other QIPC projects, including advanced features like intranet, discussion forums, automated data aggregation (news, events, etc.)
- The whole QIPC Roadmap<sup>12</sup> is maintained on the QUIE<sup>2</sup>T web site, both its web and printable form. A printable pdf version can be obtained directly from the web source.
- 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<sup>13</sup>), or for other application gathering (e.g. like the SOLID project for its training activities<sup>14</sup>). It is also used on the application page for the QUIE<sup>2</sup>T Quantum Envoy<sup>15</sup>.

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, any registered user is automatically subscribed to the list. This year, about 48 messages have been distributed via that channel, i.e. almost one per week.

To receive information there are several possible channels, the most convenient way, apart from subscribing to 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 (eg for news or jobs announcements).

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<sup>8</sup> <http://qurope.eu/db>

<sup>9</sup> <http://qurope.eu/forum>

<sup>10</sup> <http://qurope.eu/content/qurope-mailing-list>

<sup>11</sup> <http://qurope.eu/aggregator>

<sup>12</sup> <http://qurope.eu/content/Roadmap>

<sup>13</sup> <http://qurope.eu/projects/chist-era/1st-chist-era-conference>

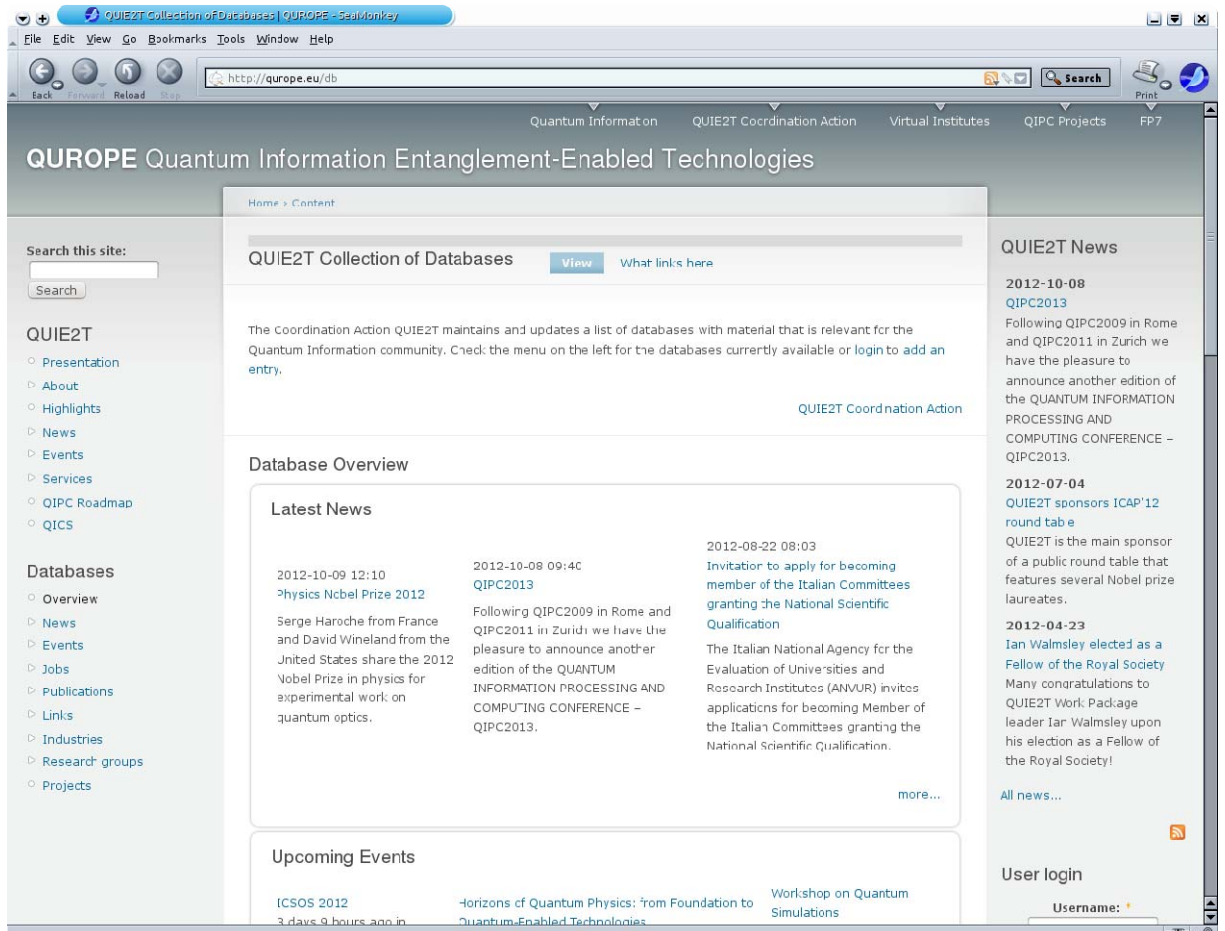
<sup>14</sup> <http://qurope.eu/content/applications-mutual-training-exchange>

<sup>15</sup> <http://qurope.eu/quie2t/calls/quantum-envoy>

## New Features

New features that have been added during this reporting period include:

- An overview page for the database collection<sup>8</sup> with automatic updates for latest additions.



- Ability to filter most databases by subjects and keywords.

The screenshot shows the QUROPE website interface. The main navigation bar includes links for Quantum Information, QUIE2T Coordination Action, Virtual Institutes, QIPC Projects, and FP7. The page title is "QUROPE Quantum Information Entanglement-Enabled Technologies".

On the left, there is a search bar and a sidebar menu with categories: QUIE2T (Presentation, About, Highlights, News, Events, Services, QIPC Roadmap, QICS) and Databases (Overview, News, Events, Jobs, Publications, Links, Industries, Research groups, Projects).

The main content area is titled "Events" and contains a collection of events related to QIFT. It states there are currently 14 records. Below this is a filter section with the following options:

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

An "Apply" button is located to the right of the filters. Below the filters is a table of 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

On the right side, there are sections for "QUIE2T News" and "QIPC News". The QUIE2T News section includes announcements for QIPC2013 (2012-10-08) and ICAP'12 (2012-07-04). The QIPC News section includes an announcement for Ian Walmsley (2012-04-23).

- Google map with locations of events<sup>16</sup>.

The screenshot shows the QUROPE website interface. At the top, the browser address bar displays <http://qurope.eu/db/events/map>. The website header features the title "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 with sections for "QUIE2T" (Presentation, About, Highlights, News, Events, Services, QIPC Roadmap, QICS) and "Databases" (Overview, News, Events, Jobs, Publications, Links, Industries, Research groups, Projects).

The central content area is titled "Upcoming Events" and features a world map with several yellow pins indicating event locations. The map includes navigation controls and a "Map" tab. Below the map, it states "Map data ©2012 MapLink, Tele Atlas - Terms of Use".

On the right side, there is a "QUIE2T News" section with the following entries:

- 2012-10-08 QIPC2013**  
Following QIPC2009 in Roma 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**  
QUIE2T is the main sponsor of a public round table that features several Nobel prize laureates.
- 2012-04-23 Ian Walmsley elected as a Fellow of the Royal Society**  
Many congratulations to QUIE2T Work Package leader Ian Walmsley upon his election as a Fellow of the Royal Society!

At the bottom of the page, there are logos for the European Union, "FUNDING OPPORTUNITIES from the FUTURE & EMERGING TECHNOLOGIES scheme", and the "SEVENTH FRAMEWORK PROGRAMME".

<sup>16</sup> <http://qurope.eu/db/events/map/>

- Google map with locations of jobs<sup>17</sup>.

The screenshot shows a web browser window displaying the QUROPE website. The browser's address bar shows the URL <http://qurope.eu/db/jobs/map>. The website header features the text "QUROPE Quantum Information Entanglement-Enabled Technologies" and a navigation menu with items: Quantum Information, QUIE2T Coordination Action, Virtual Institutes, QIPC Projects, and FP7.

The main content area is titled "Open Job offers" and features a Google Map of Europe. The map shows several red location pins across Europe, indicating job locations. The map interface includes standard Google Maps controls like zoom in/out, pan, and map style selection (Map, Satellite, Hybrid, Terrain). Below the map, it says "Map data ©2012 MapLink, Tele Atlas - Terms of Use".

On the left side of the page, there is a sidebar with a search bar and several menu sections:
 

- Search this site:** A search input field with a "Search" button.
- QUIE2T**
  - Presentation
  - About
  - Highlights
  - News
  - Events
  - Services
  - QIPC Roadmap
  - QICS
- Databases**
  - Overview
  - News
  - Events
  - Jobs
    - Overview
    - Job Map
  - Publications
  - Links
  - Industries
  - Research groups
  - Projects

On the right side, there is a "QUIE2T News" section with several news items:
 

- 2012-10-08 QIPC2013**: Following QIPC2009 in Roma 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. QUIE2T is the main sponsor of a public round table that features several Nobel prize laureates.
- 2012-04-23**: Ian Walmsley elected as a Fellow of the Royal Society. Many congratulations to QUIE2T Work Package leader Ian Walmsley upon his election as a Fellow of the Royal Society!

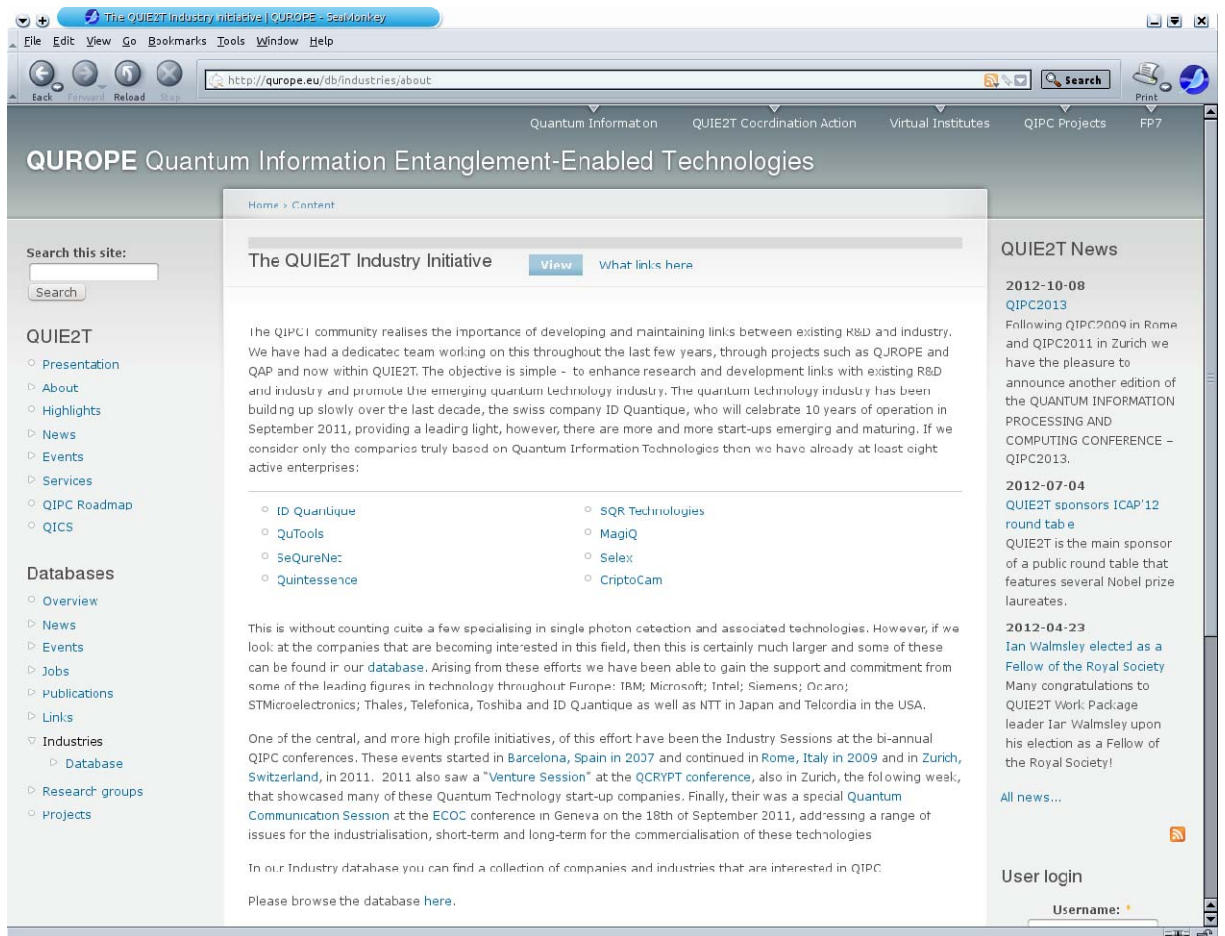
 Below the news items is a link "All news...".

At the bottom of the page, there are logos for the European Union, "FUNDING OPPORTUNITIES from the FUTURE & EMERGING TECHNOLOGIES scheme", and the "SEVENTH FRAMEWORK PROGRAMME".

<sup>17</sup> <http://qurope.eu/db/jobs/map/>



- An overview page for the industry database<sup>18</sup>.



<sup>18</sup> <http://qurope.eu/db/industries/about>

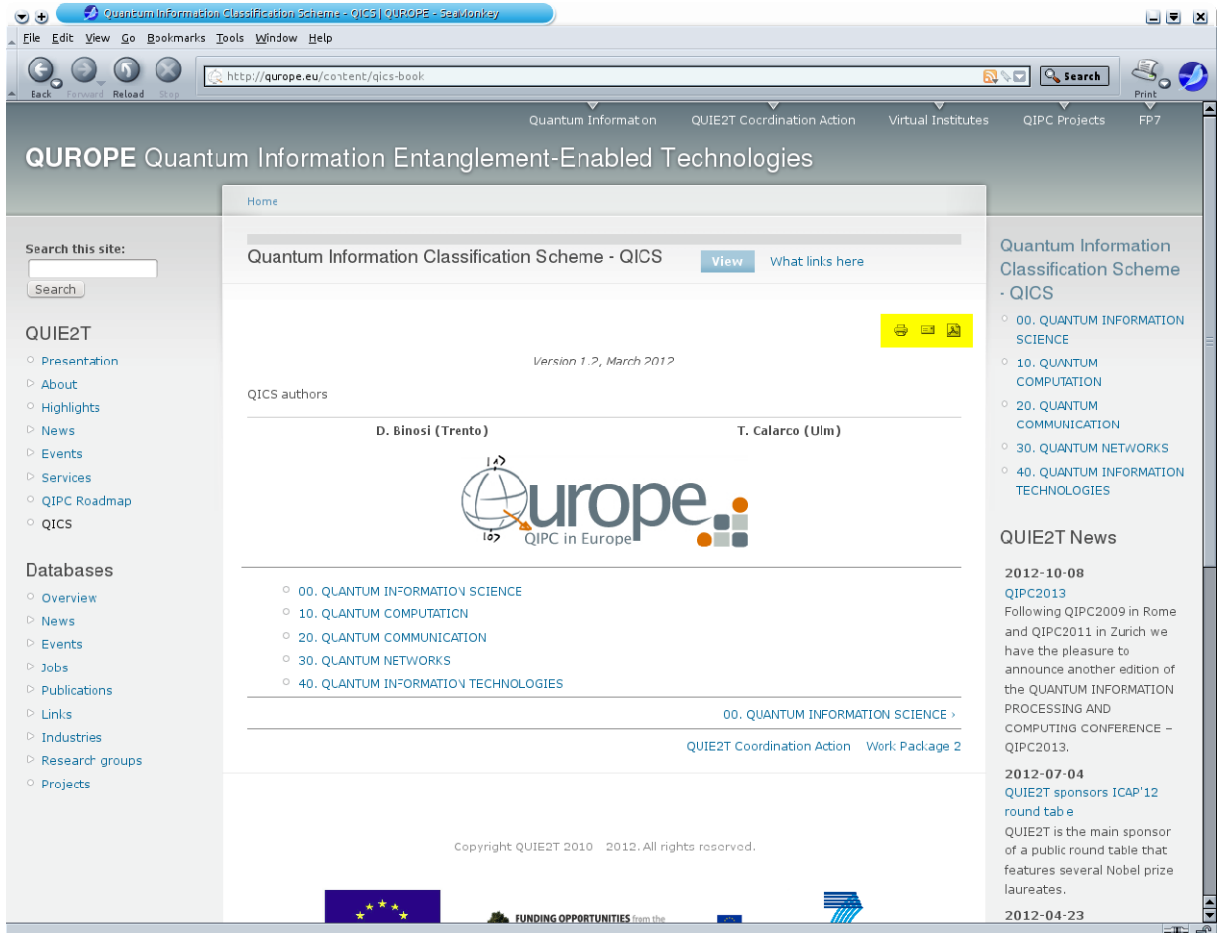
- A page to show the contact information for all the research groups in the database<sup>19</sup> (with additional information for authorized users, e.g. email addresses are only shown to users with corresponding permission). The whole set of contact data can be directly exported to an XLS Excel style sheet using a small icon on bottom of the table.

The screenshot shows a web browser window displaying the 'Group contacts' page on the QUROPE website. The page has a navigation menu at the top with links for Quantum Information, QUIE2T Coordination Action, Virtual Institutes, QIPC Projects, and FP7. A search bar is located on the left side of the page. The main content area is titled 'Group contacts' and includes a dropdown menu for 'Country' set to '<Any>' and an 'Apply' button. Below this is a table with three columns: 'Leader', 'Web page', and 'Address'. The table lists several research groups with their respective leaders, web pages, and addresses. On the right side of the page, there are sections for 'QUIE2T News' and 'QIPC News'.

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

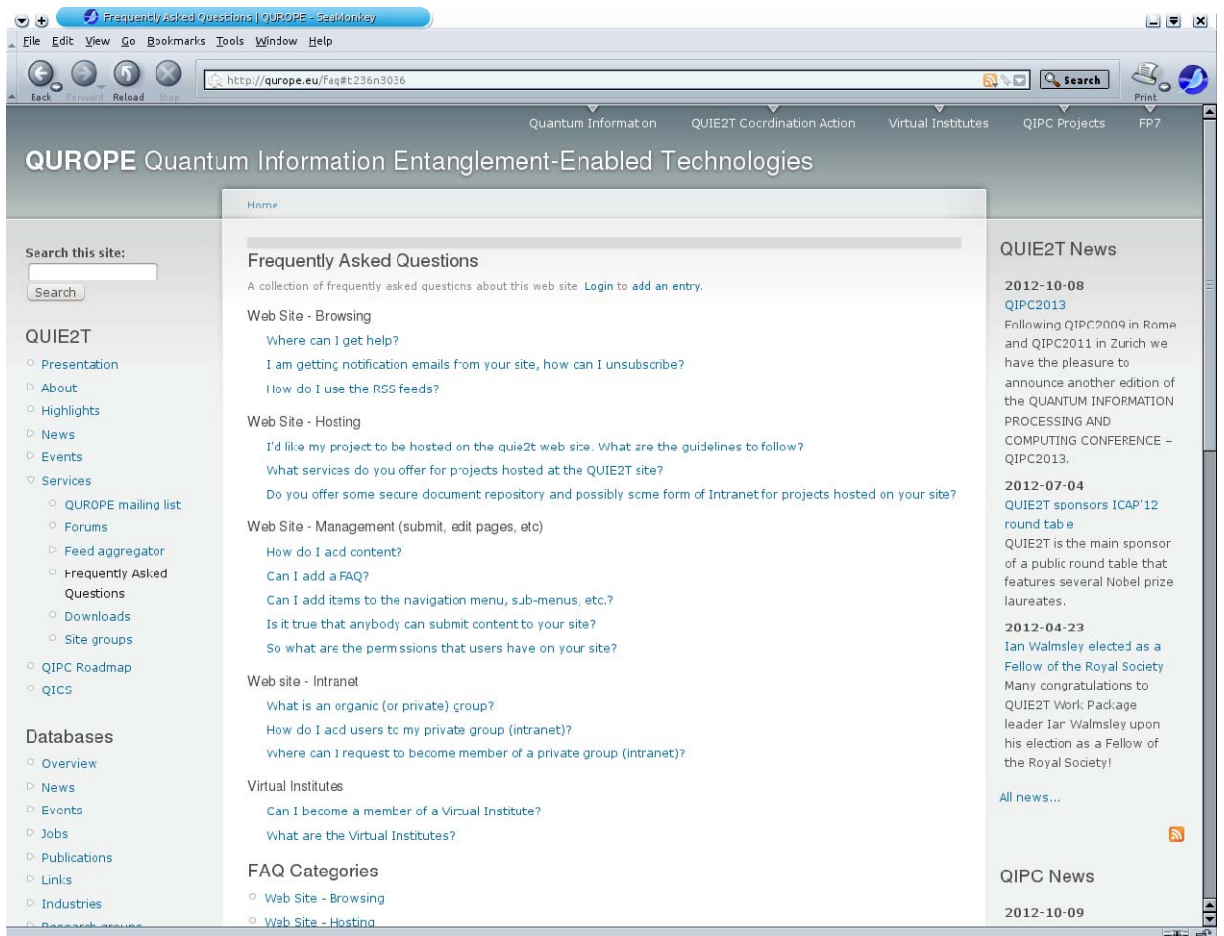
<sup>19</sup> [http://qurope.eu/db/group\\_contacts/](http://qurope.eu/db/group_contacts/)

- The Quantum Information Classification Scheme (QICS) is now maintained directly on the web site<sup>20</sup>. A printable pdf version can be obtained directly from the web source.



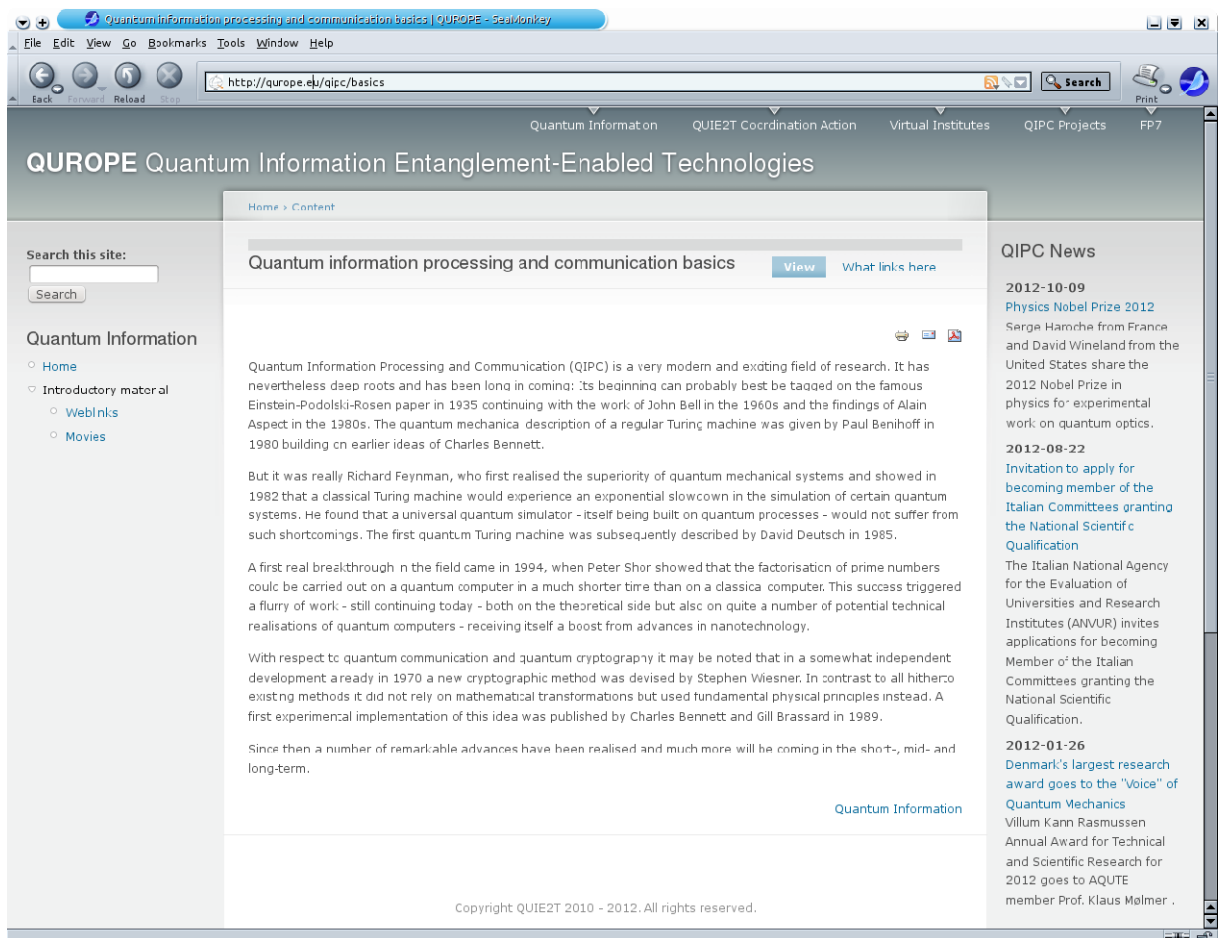
<sup>20</sup> <http://guope.eu/content/quantum-information-classification-scheme-gics/>

- A collection of Frequently Asked Questions<sup>21</sup> (FAQ) to guide new users of the site.



<sup>21</sup> <http://qurope.eu/faq/>

- A collection of introductory material to quantum information<sup>22</sup>.



<sup>22</sup> <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", "QUIE<sup>2</sup>T Coordination Action", "Virtual Institutes", "QIPC Projects", and "FP7".

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

- The ESF project FARQUEST has decided to host its web page at the QUROPE site: <http://qurope.eu/projects/farquest/>.

The screenshot shows a web browser displaying the QUROPE website. The page title is "QUROPE Quantum Information Entanglement-Enabled Technologies". The main content area features a search bar, a navigation menu, and a detailed summary of the FARQUEST project. The summary text is as follows:

**FARQUEST - A foresight activity on research and technology in quantum information science and European strategy**

**Summary**

The fascinating science behind and the high-end technological development based on Quantum Information has been a topic for basic research and proof-of-principle development for several decades now. Yet recently, it has moved from curiosity-inspired to more use-inspired research, and it has witnessed larger attention, including the public. Such attention can be seen in various places: one of particular interest is in another scientific disciplines.

For the truly hard problems of science and technology do not neatly fit into the box of one discipline alone, the "real problem-solving" often starts and then takes off with answers and ideas outside the core discipline. To this end, the ESF has started a foresight exercise – or **Forward Look** – to strategically explore the scientific as well as social dimensions of how the science and technology of Quantum Information advances in the future. The present Forward Look has been proposed by the Austrian Academy of Sciences (ÖAW) and Austrian Science Fund (FWF), with the Austrian Institute of Technology (AIT) as a facilitator, and is supported by the ESF - Standing Committees for Physical and Engineering Sciences (PESC). **FARQUEST is a prospective analysis** of the science and technology of Quantum Information, with the goal to synthesise science scenarios of future developments inspired by cross-disciplinary fields - most of which may not yet be thoroughly quantified - for collaborative significant problem-solving.

FARQUEST takes an **about 10-year horizon** on selected research fronts. It aims at getting insight into **significant problems of cross-disciplinary nature** that could mutually benefit from addressing them through both the perspective of Quantum Information and perspectives of other disciplines.

A related aim and based on anticipated future developments is of prescriptive nature: what are the present needs in terms of matching research questions, societal needs, and programmes; infrastructures; science policy; and education.

**DURATION**  
March 2011 - March 2013

**PROJECT EVENTS AND TIME SCHEDULE**  
Scoping workshop: March 2011

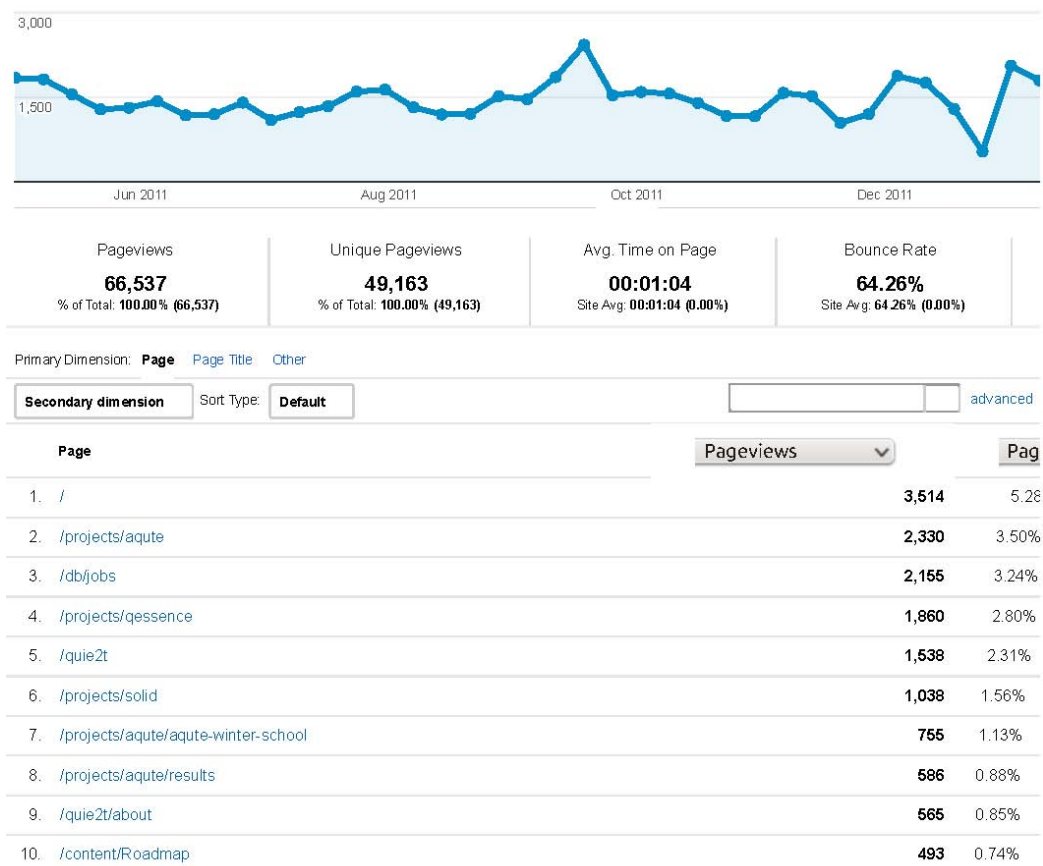
The page also includes a "User login" section with fields for "Username:" and "Password:", a "Log in" button, and links for "Log in using OpenID", "Create new account", and "Request new password".

## 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<sup>23</sup>, 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 – Mar. 1 2012. 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 3514 times in the given time period, i.e. about 12 hits per day.

The most popular pages on the site, apart from the the sub-project pages, are the job database and the QIPC Roadmap. 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 11064 times (5089 last year), the [Q-ESSENCE](#) home page 11414 (5036), the [QUIE<sup>2</sup>T](#) home page 8495 (3825) times and the [SOLID](#) home page 5882 (2660) times.



**Figure 1** Google Analytics statistics overview report on the qurope.eu domain. The covered date range is 1.5.2011 – 1.2.2012.

<sup>23</sup> <http://www.google.com/analytics/>