



FET

through the keyhole

Future and Emerging Technologies in Europe
January 2010



"It would appear that we have reached the limits of what is possible to achieve with computer technology, although one should be careful with such statements, as they tend to sound pretty silly in 5 years." (J. von Neumann)

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Welcome

Welcome to the January 2010 edition of *FET through the keyhole*. In this update, we report on the preparations for the 2011-12 FET work programme. In addition to its normal business of Open and Proactive Schemes, from 2011 FET plans to introduce *FET Flagships* as a new funding opportunity, put new emphasis on young high potential researchers and high-tech research intensive SMEs, and offer new opportunities for international cooperation.

In 2010, there will also be new opportunities to get involved in breakthrough science and technology research. FET-Open will continue to welcome outstanding short proposals which challenge current thinking in ICT. And ICT Call 6 will include FET-Proactive calls addressing research challenges in *Molecular Scale Devices & Systems* and *Brain-Inspired ICT*.

As usual, this newsletter also contains a selection of stories and *faits divers* from ongoing projects, and an agenda of upcoming events.

We wish you pleasant reading and send you our best wishes for a peaceful Christmas and for a new year full of exciting research and successful breakthroughs!

The FET Team

Gearing up for the 2011-2012 research work programme

FET-Proactive is currently collecting ideas and input for research topics which may be the subject of future Proactive calls in 2011-12 (and beyond). In this context, a series of meetings is being organised with experts from diverse research fields and backgrounds. A public consultation has also been launched, and your participation is very welcome. We value your feedback and any additional ideas you may want to share with us.

Following the consultation process, topics will be prioritised and planned within the available 2-year timeframe and budget, taking into account relevant scientific and strategic requirements.

The final work programme is expected to be available before the 2010 summer holidays.

More on the public consultation:

ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/fet-open/fet2009-incosurvey_en.pdf

Reports from Proactive consultation meetings:

http://cordis.europa.eu/fp7/ict/fet-proactive/shapefetip-wp2011-12_en.html

New thinking in 2011-2012 – Boosting FET Research

The new FET work programme for 2011-12 will contain valuable new elements to boost FET Research and extend the range of funding opportunities available to researchers and scientists. These new elements are a direct

operational response to the text of the Commission's FET-related Communication of April 2009 entitled "*Moving the ICT Frontiers*".

Moving the ICT frontiers:

http://ec.europa.eu/information_society/events/fet/2009/documents/fetcom.pdf

Each new element of the 2011-12 FET work programme is introduced in turn below.

FET Flagships

FET Flagships are long-term, visionary, goal-driven, large-scale European ICT research initiatives, which nucleate from FET, but cascade into various scientific and technological areas. Designed to better exploit the strengths of Europe's various national research capacities at a European level, FET Flagships will be endowed with a budget which is considerably higher than current FET-Proactive IP projects.

The Flagship concept is undergoing further refinement. In this context, FET is organising an **Information Day and Workshop on Flagships on 22nd January 2010 in Brussels**. The workshop will bring together scientists in the role of ambassadors to their scientific communities, to discuss potential flagship topics.

FET through the keyhole readers can also contribute to the shaping of the Flagships by **submitting ideas for candidate topics before January 13th 2010**. All contributions will be published, and a number of the collected ideas will be presented at the workshop on January 22nd 2010 as a starting point for discussions.

More on the infoday & workshop, incl. registration:

http://cordis.europa.eu/fp7/ict/fet-proactive/flagship-ie-jan10_en.html

Submit your idea for a flagship here:

http://cordis.europa.eu/fp7/ict/fet-proactive/flagshipconsult2009_en.html

For more on the rationale and motivation for flagships.

See the *ISTAG Report on European Challenges & Flagships 2020 and beyond (July 2009)*

ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/fet-proactive/press-17_en.pdf

Investing in Europe's High Potential Young Researchers

"They didn't know it was impossible, so they went ahead and did it". (Mark Twain)

Young researchers have a natural tendency to think out-of-the-box, to target frontier challenges, to invest energy in high-risk research, and to understand and embrace new

trends.

So what is the challenge? Well, many PhD students and post-docs participate in on-going FET projects, yet only a handful **take the intellectual leadership** of such projects, or **submit their own ideas** successfully as proposals.

We want to change that. To do so, FET is planning to implement initiatives to intensify participation by young researchers in FET research, and to encourage young researchers with high potential to take the lead in multidisciplinary research projects.

What stops Young Researchers of taking the driver's seat in FET Projects? A group of 19 young researchers from 12 European countries convened in Brussels on 23 November to debate this question. The list of difficulties is long: *lack of time for research, complex rules and procedures, the difficulty to form a high-level consortium, and finally the perceived hopelessness of competing against established researchers in the grant process.*

But the workshop also proposed concrete actions to address these problems - effective social networks for young researchers to create high-quality multi-disciplinary consortia, simplification and help to navigate grant schemes, rules, procedures and work-programmes, and even dedicated collaborative grant schemes for young researchers.

Watch out for the final report of this workshop which will be published in January. If you are a young researcher or know one who is interested by this initiative, we would be interested to hear from you!

Email: prabhat.agarwal@ec.europa.eu

or join the interest group gathering at

<http://cafeteria.ning.com/group/10>

Research intensive high-tech SMEs in European FET Research

SMEs play a vital role in the development of new visions and in transforming them into business assets. The match with the visionary spirit of FET is obvious. Both the recent Commission Communication on FET and the ISTAG working group report on FET have called for a strengthened participation of high-tech SMEs in FET. The potential benefits are indeed many. On the one hand FET projects offer an excellent opportunity for small tech-companies to maintain and expand their perspective on research, and to open-up new directions for their future. On the other hand, high-tech SMEs can bring a lot to FET as well. Their research is often top-notch and they are typically more agile, more outward-oriented and more

communicative than academic research organisations. Their sense of urgency and their capacity to focus and act upon opportunities, often investing considerable extra time, makes them an asset for the projects and for the programme.

Research intensive high-tech SMEs are cool!

That is what we think in FET! We want to see more of them participating in and shaping research in FET projects! Do you know a high-tech and research-intensive SME that has the right spirit for FET?

Let us know about them! Email to walter.van-de-velde@ec.europa.eu

FET is just starting a one-year study on how to better activate the research of high-tech SMEs within FET. The new work programme 2011-12 will provide dedicated measures to achieve this.

Commission Communication

http://ec.europa.eu/information_society/events/fet/2009/documents/fet-com.pdf

Recommendations on Future and Emerging Technologies – Report of the ISTAG Advisory Group (October 2009)

ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/fet-open/20091016-final-istag_en.pdf

New Opportunities for International Cooperation

FET-Open has just concluded a survey aimed at collecting information on international research collaboration activities within the community of FET-funded projects. The survey aimed to get your views on which type of international cooperation activities should be strengthened in the next FET work programme. The survey questionnaire was sent to 200 FET project coordinators, of which 56 replied (28% response).

Main survey findings:

- 96% of respondents are very active internationally – 71% with the US, 32% with Japan, and 16-18% with China, Australia, Canada and Russia.
- Main activities relate to networking and dissemination (66%), exchange of pre- and post-Docs (64%), and perhaps more surprisingly, joint research projects (54%).
- All participants agreed that international research collaboration should be intensified, and 96% suggested that FET should launch a dedicated call to support international cooperation.

The survey results will provide valuable results for the design of the FET 2011-2012 work programme. Watch this space!

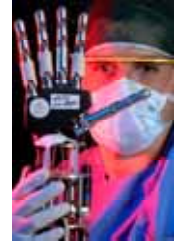
Overview of survey results

ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/fet-open/fet2009-inco-survey_en.pdf

News from FET

Touched by a Cyberhand

For the first time in history, medical doctors have successfully transplanted a robotic arm on to a patient. Robotic arms may not be new, but this one is remarkable in the sense that the patient can not only move the artificial hand and fingers, but also gets back the sense of touch from the artificial fingers.



The procedure involved connecting the prosthesis to the patient's nervous system through extremely thin electrodes implanted in the peripheral nerves of the arm. This provides a two-way connection between the brain and the artificial hand.

The research leading to this achievement was pioneered in FET. It was funded through the CYBERHAND (FP5) and NEUROBOTICS (FP6) projects, after which it further matured using additional European and Italian funding sources.

Press release:

<http://www.unicampus.it/lifehand/a-challenge-lifehand>

Coverage on BBC

http://news.bbc.co.uk/2/hi/video_and_audio/8392111.stm?ls

More on the Projects

<http://www-arts.sssup.it/newCyberhand/> and <http://www.neurobotics.info/>

Challenging Current Thinking

FET has launched a new communication campaign to "up the stakes" in frontier research. It is designed to invite you to dream of what could be possible if we, together, were willing to take the risk. The campaign is not about getting more proposals submitted, it is about raising the bar in terms of ambition and associated risks of what is being proposed.

Our new communication campaign, on the theme "**Who will invent the technologies we will rely on for our future? Will it be you?**" puts the emphasis on **you**, scientists and researchers. We want to invite you to take time to reflect on the real opportunity FET provides you to work on **truly important problems that not only matter to you but can truly transform science, technology and society**. We want you to imagine truly

outstanding and potentially disruptive new ideas which can make the future better for all of us.



ideas the future us.

Through our communication campaign we want to tell you as well that FET is accepting to share the risk to support your courageous ideas.

The campaign consists of a short animation, and a longer documentary style video which celebrates the values which drive FET-Open researchers and scientists in their work, through interviews with three researchers involved in FET-Open projects.

[FET-Open short animation](#)

<http://www.youtube.com/watch?v=DkaUTYYtmJ4>

[FET-Open short documentary](#)

<http://www.youtube.com/watch?v=-HwZcqcE0nw>

[Let us know what you think!](#)

info-ictfet@ec.europa.eu

FET-Open in FP7: 1,000 Short Proposals Strong

At the time of writing FET-Open is close to receiving its **1,000th short proposal** in FP7. It is quite a milestone which we will celebrate in January 2010! It has been very exciting to see these ideas come across our desks. The nearly 60 projects funded by FET-Open in FP7 are described in a new up-to-date overview document from FET-Open. Why not take a look?

[Overview of FET-Open Projects – Jan 2010](#)

ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/fet-open/201001-fet-open-portfolio-analysis_en.pdf

Overheard in the caFETeria

FET has also just met an important milestone with the subscription of our **400th member** to the caFETeria networking site. Why not join and help shape the future of computing, and to network with FET colleagues?

<http://cafeteria.ning.com>

FET Funding Opportunities

FET-Open in 2010

In 2010, FET-Open continues to look forward to receiving your short proposals for scientifically excellent (STREP) research projects impacting on the future of ICT, and for coordination actions that help to catalyse a lasting and transformative effect on the communities and practices for high-risk and high-impact research. You can submit your short proposals as soon as they are ready. There is no call deadline.

[FET-Open work programme](#)

http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.CooperationDetailsCallPage&call_id=189

FET-Proactive - Call 6

Call 6 under the FP7 2009-10 Work Programme (identifier FP7-ICT-2009-6) was launched on 24th November 2009. **The deadline for proposal submission is 13th April 2010 (17h00 Brussels time).** The call features 2 thematic R&D initiatives and a call for coordination actions either supporting these R&D Initiatives or others currently running. The indicative budget for the objectives in call 6 is 32 M€. More information can be found below.

• Molecular Scale Devices and Systems

The proposed research should address storage, processing and exchange of information at the atomic and molecular scale, as a basis for fully functional ICT devices and systems. They should rely on new scalable concepts and architectures enabled by atomic precision and control, exploit intrinsic properties of atoms and molecules, realize their interconnection, interface them to the mesoscopic world and ultimately have an impact on future information processing systems.

http://cordis.europa.eu/fp7/ict/fet-proactive/amolit_en.html

• Brain-Inspired ICT

Recent advances in ICT and neuroscience enable 'in silico' study and modelling of a significant part of the human brain. Research proposals should seek to exploit such advances in order to better understand how the brain processes information and/or how it communicates with the peripheral nervous system. Potential applications should be explored.

http://cordis.europa.eu/fp7/ict/fet-proactive/brainict_en.html

• Coordinating Communities, Plans and Actions in FET-Proactive Initiatives:

The call targets **coordination actions** that support targeted research communities by increasing their visibility to the scientific community, industry & public. They will foster the consolidation of research agendas and the coordination of national, regional and international research programmes and activities and encourage the establishment of new educational curricula.

Alternatively, coordination actions may involve national or regional research programme owners and develop actions dedicated specifically to networking of research activities at national or regional level. In this case they should facilitate joint trans-national calls and aim for an ERA-NET plus action in a subsequent phase.

More info:

http://cordis.europa.eu/fp7/ict/fet-proactive/csafetip_en.html

• Identifying new research topics, Assessing emerging global S&T trends in ICT for future FET-Proactive initiatives

These types of **coordination actions** should focus efforts on the definition of future FET-Proactive initiatives. They may for example identify new research topics (at Proactive initiative level) through developing a position paper in which the required actions, research challenges and impact (foreseen in science, technology and society) is described.

Alternatively, they may target the assessment of emerging global S&T trends in ICT that could lead to the definition of research topics, help to overcome roadblocks and set the future scene. In addition they may assess the potential of recent breakthroughs in FET related research.

http://cordis.europa.eu/fp7/ict/fet-proactive/futfetip_en.html

Information Day on Call 6

FET-Proactive will host an information day on Call 6 on **21st January 2010 in Brussels**. The day will provide first-hand information on the FET-Proactive initiatives in this call, as well as contractual, legal and administrative modalities.

In addition, the formation of consortia and synergies will be facilitated through an open exchange 'Proposers Forum'.

More information is available from http://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan10_en.html

La vie des projets

Simulation technology could help prevent future financial crises

How will economic policies adapt in 2020, when a quarter of the EU population will be over 65? Can economics better predict how banks will react to credit crunches in the future, and what their impact will be on the wider economy? How will the economy work when dwindling natural resources make it harder to satisfy our energy needs?

The answer to these questions is... *simulate!* The FET **Eurace** project has developed software which applied similar simulation technology based on multi-agent models. The software can predict the interaction between large populations of different economic actors, including households, companies, banks, borrowers, employees and job



seekers... In its final press release on the successful conclusion of this project, Viviane Reding, European Commissioner for Information Society and Media, commented: "This first class European research can help us make the move from the economics of pen and paper to the economics of super-computers".

Press release:

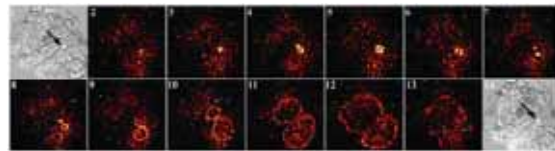
europa.eu/rapid/pressReleasesAction.do?reference=IP/09/1841&format=HTML&aged=0&language=EN&guiLanguage=fr

EURACE website:

<http://www.eurace.org/>

3D CMOS camera for your mobile?

The FET-Open **Megaframe** project has developed a CMOS video camera that can capture 1024 individual photons at one million frames a second. It can record, to within 100 picoseconds, when the photon arrived at each detector. This is **insanely fast**, making Europe the world leader in this technology.



High-speed image sequence of the binding of neutrophil at the interface of two endothelial cells via calcium triggered chemical waves propagating through the cells. (Courtesy of H.R. Petty and Megaframe website)

New scientific fields like proteomics – require cameras that are capable of recording data at photon-resolution, and extremely fast. Megaframe can do this - and more. The device is quick enough to capture impulses hurtling through firing nerve cells, and its resolution is good enough to film the microsecond-long pulse-like nerve signals that speed through networks of neurons at up to 180 kilometres per hour. The accuracy is an enormous boost to 'time-of-light' 3D video. Time of light judges the depth of field, or the distance of a particular object in a scene, by the time it takes light fired at the object to be reflected back. It is incredibly accurate when well done, but it requires the precision that Megaframe has now achieved.

The fact that this has been done in CMOS makes the technology potentially cheap, thus providing a breakthrough towards a wide range of possibilities in biomedical- and neuroscience, but also in consumer and industrial applications. Well done, Megaframe!

Megaframe on New Scientist:

<http://www.newscientist.com/article/dn18051-super-slowmotion-camera-can-follow-firing-neurons.html>

Megaframe on IST results:

<http://cordis.europa.eu/ictresults/index.cfm?section=news&tpl=article&BrowsingType=Features&ID=90916>

Megaframe project website:

Trapping Molecules on a Chip

Single molecule manipulation is currently considered an area where Europe currently has the international lead. Those prospects have just come a step closer to reality. The partners of **Chimono** have developed a new micro-chip structure that can perform the same experiments traditionally done with much larger machines.

Making precise observations of gas-phase molecules is notoriously difficult, in part because molecules are free to roam around. Most contemporary experiments investigating molecules and reaction processes between colliding molecules have been performed using (supersonically expanded) molecular beams. These beams provide a fairly pure sample of molecules. However, the molecules are moving at some several hundred meters per second in the laboratory – or chip – frame.



Samuel Meek, a PhD student from the Fritz Haber Institute in Berlin, holding the chip before placing it under vacuum.

With the new chip, researchers can now fully control and confine gas-phase CO molecules in an array of electric field traps just above the chip's surface. The new microstructure can slice a portion of these fast molecules out of the beam and decelerate them down to a standstill over a distance of only a few centimetres. Moreover, the structure can also accelerate the molecules back off the chip to assure that all molecules arrive simultaneously in the detection region - such a mature detection scheme is one of the biggest benefits of the chip.

One of many follow-up experiments that can be devised proposes using trapped polar molecules above a chip as qubits for a quantum computer. Such new chip experiments demonstrate the extent to which future fundamental physics experiments will profit from such 'downsizing'.

Article in 'Science'

<http://www.sciencemag.org/cgi/content/full/324/5935/1699>

CHIMONO website: <http://chimono.lens.unifi.it>

Workshop Announcement

5th Analytics Day/ Vismaster Industry Day 2010

January 20th-21st 2010, Darmstadt, Germany

This workshop will look at different application areas that increasingly use visual analytics to solve the data challenges of their field. Experts in these areas will present new trends in data analysis and explain the benefits with hands-on business and use cases.

<http://www.analytics-day.de>

New research roadmaps from InterLink

The FET-Open Coordination Action **InterLink** has published its **research roadmaps** for three areas in which new technologies are likely to emerge in the next 10-20 years, namely **Software Intensive Systems and New Computing Paradigms, Ambient Computing and Communication Environments, and Intelligent and Cognitive Systems**. They are the result of a series of international workshops and formulate the research priorities that it believes will create the scientific basis for concrete new technologies to be developed in the long run. The recommendations are based on a sound cross-disciplinary perspective and, importantly, they transcend the European dimension towards global international collaboration. InterLink (and FET) invites you to build on these roadmaps and welcomes your comments!

<http://interlink.ics.forth.gr/>

When cars go to driving school

High-end cars already learn how you like your seat and steering wheel adjusted. The next generation of cars may be smart enough to learn how you drive and warn you when you're not driving safely. That was the vision behind **DRIVSCO**, the FET-Open project which has just finished.

Imagine if your car could learn how you handle different driving situations, then alert you if you fail to slow for a curve or start driving erratically? DRIVSCO has built a working prototype of such a car using state-of-the-art sensors, image processors, and learning algorithms. The prototype system tracks a driver's movements, matches those actions with what it "sees" down the road, and learns how that driver normally handles situations such as upcoming curves or other vehicles ahead. Its infrared headlights, stereo cameras, and advanced visual processing allow the system to actually see better at night than a human driver.



The problem is non-trivial. A scene that makes perfect sense to humans – a clearly defined roadway curving into the distance, trees and signs slipping by, other vehicles distributed across various lanes ahead, some moving at our speed, others pulling away or coming closer – is at first glance nothing more than a sea of coloured pixels to a computer. But using inspiration from how humans do such a remarkable job of making sense of patterns of dancing light over the retina, the DRIVSCO researcher brought us closer to the smart car concept.

A key feature in humans is a constant two-way feedback between higher- and lower-level visual areas. As we drive, high-level visual areas that store complex perceptions such as ‘car getting closer’ or ‘person crossing the road’ are constantly active. These areas send messages – feedback – that interact with incoming signals representing more basic features such as edges, colours, and movement. When there’s a match, an object pops out of the background, complete with perceptions of its size, location, and movement.

“How the visual front-end of DRIVSCO works was very much inspired by the visual cortex of vertebrates,” says Florentin Wörgötter, the project coordinator. *“The feedback mechanism, where higher-level modules interact with modules that detect simpler features, solves the very difficult problem of detecting independent objects even when you and they are moving at the same speed.”*

DRIVSCO’s vision is that, through its ability to learn individual driving styles, the prototype developed may one day be of interest to European car manufacturers for implementation into high-end vehicles.

Text adapted from a forthcoming article by the IST Results service which will appear in February 2010

<http://cordis.europa.eu/ictresults/>

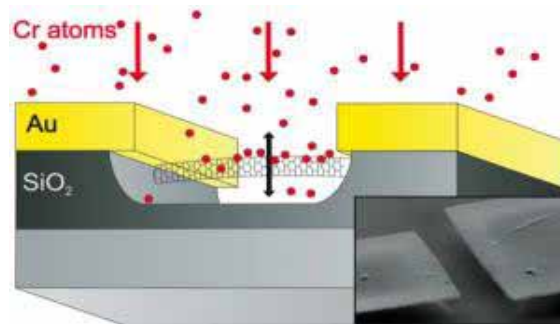
DRIVSCO website

Nanotubes weigh the atom

FET researchers have built an exquisite new device that allows scientists to study the progress of chemical reactions, molecule by molecule. Carbon nanotubes are ultra-thin fibres of carbon only one atom thick – known as graphene – rolled into a tube only a few nanometres across. Even the thickest is more than a thousand times thinner than a human hair.

“They have unique properties” explains Pertti Hakonen, coordinator of the **CARDEQ** project. *“They are about 1000 times stronger than steel and very good thermal conductors and good electrical conductors. We are exploiting these*

intriguing materials to build a device sensitive enough to measure the masses of atoms and molecules.”



Carbon nanotube weighing chromium atoms

The consortium has taken the approach of building a semiconducting nanotube into a transistor so that the vibration modulates the current passing through it. The suspended nanotube is simultaneously the vibrating element and the readout element of the transistor. The idea was to run three different detector plans in parallel and then select the best one. Now they are down to two. So they have the single electron transfer concept, which is more sensitive, and the field effect transistor concept, which is faster.

CARDEQ is not alone in employing carbon nanotubes as mass sensors. Similar work is going on at Berkeley and Caltech – though each has adopted a different method to measure the mass. All three groups have announced they can perform mass detection on the atomic level using nanotubes, but CARDEQ researchers provided the most convincing data with a clear shift in the resonance frequency.

The consortium is confident they can push the technology to detect the mass of a single nucleon – a proton or neutron. *“This is really front-line work and breakthroughs do occur occasionally”* the coordinator says. If the resolution can be pared down to a single nucleon, then researchers can look forward to accurately weighing different types of molecules and atoms in real time. It may then become possible to observe the radioactive decay of a single nucleus and to study other types of quantum mechanical phenomena.

Article on ICT results:
<http://cordis.europa.eu/ictresults/index.cfm?section=news&tpl=article&ID=90708>
CARDEQ website:
<http://www.cardeq.eu/>

Awards

Rainer Blatt (University of Innsbruck) and **Ignacio Cirac** (Max Planck Institute for Quantum Optics) received the **Carl Zeiss Research Award** for *“their revolutionary experimental and theoretical work in the field of*

quantum information and for the concepts and ideas that they have developed in quantum optics".

<http://www.zeiss.com/C1256A770030BCE0/WebViewAllE/8353F52CB6F3FAF9C125766C00502F12>

Forthcoming events

5TH ANALYTICS DAY

VISMASTER INDUSTRY DAY 2010

20-21 January 2010 – Darmstadt (DE)

<http://www.analytics-day.de>

INFORMATION DAY ON CALL 6

21 January 2010 – Brussels (BE)

http://cordis.europa.eu/fp7/ict/fet-proactive/ie-jan10_en.html

INFORMATION DAY AND WORKSHOP ON FET FLAGSHIPS

22 January 2010 – Brussels (BE)

http://cordis.europa.eu/fp7/ict/fet-proactive/flagship-ie-jan10_en.html

TRUSTWORTHY GLOBAL COMPUTING 2010

24-26 February 2010 – München (DE)

<http://www.pst.ifi.lmu.de/tgc2010>

THIRD RAVE WORKSHOP (RAVE-10)

3 March 2010 - Barcelona (ESP)

<http://www.raveconference.com>

SOUND APS 'MARCH MEETING' 2010

15-19 March 2010 - Portland (US)

<http://www.aps.org/meetings/march>

SCIENCE BEYOND FICTION @ THE EUROPEAN PARLIAMENT

20-21 April 2010 (tbc) – Strasbourg (FR)

9TH INTERNATIONAL CONFERENCE ON UNCONVENTIONAL COMPUTATION (UC10)

21-25 June 2010 - Tokyo (JP)

<http://arn.local.frs.riken.jp/UC10>

12TH INTERNATIONAL CONFERENCE ON THE SYNTHESIS AND SIMULATION OF LIVING SYSTEMS

19-23 August 2010 - Odense (DK)

<http://www.alife12.org/>

ELEVENTH INTERNATIONAL CONFERENCE ON MEMBRANE COMPUTING (CMC11)

24-27 August 2010 - Jena (DE)

<http://cmc11.uni-jena.de>

IEEE BioRob 2010

26-30 Sept 2010 - Tokyo (JP)

<http://www.nml.t.u-tokyo.ac.jp/BioRob2010>

INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS 2010)

18-22 October 2010 - Taipei (TW)

<http://www.iros2010.org.tw>

Cluster reviews of FET-Proactive projects

Global Computing – 23-24 Feb 2010, München (DE)

Bio-ICT Convergence – 22-26 Feb 2010, Brussels (BE)

PERADA – 9-11 March 2010, Brussels (BE)

ICT Forever Yours – 15-18 March 2010, Brussels (BE)

EMBODYi – 17-18 March 2010, Livorno (IT)

Complex Systems – 23-26 March 2010, Brussels (BE)

Nano-ICT – 7-9 April 2010, Cambridge (UK)

QIPC – 6-7 July 2010, Oxford (UK)

About this Newsletter

FET through the keyhole is published periodically by the FET-Open and FET-Proactive units at the European Commission Directorate General for Information Society and Media

Please contact us if you would like to consider any FET or project related news for publication in this newsletter.

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FET Proactive: info-ictfet@ec.europa.eu

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Consult this Newsletter online

ftp.cordis.europa.eu/pub/fp7/ict/docs/fet/fet-nl-06_en.pdf