



FET

through the keyhole

Future and Emerging Technologies in Europe
July 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)

In this issue

- **WP 2011-12 - Boosting FET Research** 1
- **News from FET** 3
- **La vie des projets** 5
- **Forthcoming events** 8

Welcome

Welcome to the July 2010 edition of *FET through the keyhole*. In this update, we report on a whole series of new opportunities for FET research in 2011-2012. This newsletter also contains a selection of stories and *faits divers* from ongoing projects, and an agenda of upcoming events. In particular we invite you to already book your agenda for the next FET conference to be held in Budapest on 4-6 May 2011!

We wish you pleasant reading and a well deserved summer break!

The FET Team

New thinking in 2011-2012 – Boosting FET Research

The new work programme for FET is now approved. We would like first of all to thank all of you who helped us identifying the most promising topics by joining our consultations, sending us your views, reacting to draft reports and participating in other ways.

In the new work programme, FET continues and extends its continuous Open Scheme and is proud to announce two further continuous calls with a focus on *Young Explorers* and *High-Tech Research Intensive SMEs*. A further call to broaden the opportunities for international co-

operation in running FET projects is also planned.

This summer will also see the opening of several additional new FET calls. A special call for flagship preparatory actions, closing in early December, is designed to select around 5-6 coordination actions to pave the way for a real flagship. In 2012 two of these will be selected to start in 2013 as the first FET Flagships. At the very popular Science and Policy Forum on 9 and 10 June many ideas were put forward – don't miss the opportunity to take part!

In call 7 we will also welcome proposals for support actions to identify and explore potential new FET topics, and organise workshops or conferences for the FET community. This will be repeated in calls 8 and 9, but then also including coordination actions to coordinate FET communities, and supporting collaboration with the best teams worldwide.

Nine national funding agencies got together and created in late 2008 an ERA-NET action called CHISTERA. This will launch in the coming months transnational calls on FET style topics. Our new Work Programme foresees a continuation of this exciting development with a call for a new ERA-NET proposal.

In call 8, a number of exciting proactive initiatives will be launched on Unconventional Computing (covering topics such as bio-chemical, DNA, amorphous and reversible computing), the Dynamics of Multi-Level Complex Systems (for example relating to financial markets or social simulation), and Minimising Energy Consumption of Computing to the Limit - radically new technologies that strive for the theoretical limits in energy consumption.

In call 9 there will be proactives on Quantum ICT (now also including an ERA-NET Plus opportunity), Fundamentals of Collective Adaptive Systems (exploring the concept of an artificial society), and Neuro-Bio-Inspired Systems – understanding neural processing and closing the gap with novel computing paradigms.

Coordination Actions for FET

Objective ICT-2011.9.12: Coordinating Communities, Identifying new research topics ... and more:

This objective includes a number of elements, including for call 7 the possibility for a follow up to the FET ERANET project called CHIST-ERA.

It is also possible to submit proposals for short-duration actions to identify and formulate new FET topics, and actions to organise conferences and workshops which foster dialogue between science, policy and society.

The deadline for proposal submission is 18th January 2011 (17h00 Brussels time).

High-tech Research Intensive SMEs

Objective ICT-2011.9.2: High-Tech Research Intensive SMEs in FET research

This objective fosters the participation of high-tech, research intensive SMEs in a driving role in collaborative research projects targeting visionary, multi-disciplinary research.

The consortium will contain at least one research intensive high-tech SME with an established and proven in-house research capacity and that will play a driving role in setting and executing the research agenda of the project. This objective is expected to be addressed by small STREPs proposals, each with a funding in the order of EUR 1 million, where the largest share of the resources is allocated to the participating SME(s).

http://cordis.europa.eu/fp7/ict/fet-open/home_en.html

FET Young Explorers

Objective ICT-2011.9.3: FET Young Explorers

This objective aims at capturing the creative potential of young researchers by fostering their leadership and participation in collaborative research projects targeting first-ever and exploratory, multi-disciplinary research.

The objective is expected to be addressed by small STREP proposals, each requesting a grant in the order of EUR 1 million.

http://cordis.europa.eu/fp7/ict/fet-open/ye_en.html

International Cooperation

Objective ICT-2011.9.4: International co-operation on FET research

This objective aims to accelerate the impact of FET research projects through cooperation with non-EU partners of excellent global standing. It targets the extension of ongoing FET projects with complementary research activities in which collaboration with non-EU research partners brings significant added value.

An indicative budget of 3m euros is earmarked for this activity.



FET Flagships

FET Flagship Initiatives are proposed to be visionary, science-driven, large-scale research initiatives oriented towards a unifying goal and taking a multidisciplinary approach nucleated from ICT future and emerging technologies. Building on areas of established European excellence, these long-term programmes are envisaged to target ambitious objectives much beyond current FET Proactive Initiatives. FET Flagships should generate a wave of technological innovation and economic exploitation, ideally in a variety of areas and sectors, and would carry an important societal impact.

Science and Policy Forum on FET Flagships – 9/10 June, Brussels

The forum targeted high-level networking and information sharing on the preparation of the FET Flagship Initiatives. Specific objectives were:

- common reflection on the concept and features of FET Flagships;
- discussion of flagship ideas with scientific stakeholders and representatives of national funding agencies;
- elaborate on clustering, alignment and merging of ideas, if appropriate;
- explore the preliminary conclusions of an external study on the factors linked to the success of previous flagship-like initiatives;
- inform on the plans for the forthcoming call for FET Flagships Preparatory Actions, expected end July 2010.

More than 250 participants attended this event, including high-level representatives of the Commission, National ICT Directors, high-level researchers, ISTAG FET members, and members of the FET Flagship Coordination Group.



The topics of the Flagship talks are listed in the agenda and slides are available at the web site below.

The meeting concluded with a broad consensus on the main features to characterize FET Flagships. The goal-oriented nature, the multi-disciplinary approach, and the long-term commitment are all key elements, whose combination is a highly challenging task in itself.

Patrizia Toia, Member of the European Parliament and Vice-Chair of the ITRE committee, made a statement for the meeting saying *"The ambitious goals of FET Flagships require a joint effort of the Union, its Member States, and by including industry and international partners, where appropriate. Since the ambition is huge, a FET Flagship should be based on outstanding researchers and innovators, including world-wide partnerships."*

Policy makers want tangible outcomes which clearly contribute to solutions of socio-economic problems (ageing population, etc), and not targeting merely the accumulation of scientific knowledge or technical capability. However, when designing a FET Flagship, the scientific considerations should be first, and political second, not forgetting that both are indispensable for success.

The Flagships Science Forum Coordination Group gave a summary feedback on the Flagship ideas currently under discussion, highlighting the necessity to target a clearly defined and broadly supported goal of appropriate ambition, accompanied by a credible workplan concept. To achieve the intended scope, most ideas presented will require further collaboration and development. Management and governance issues must not be underestimated.

Apart from the Science Forum Coordination Group, FET has also set up a working group consisting of key people from national/regional funding agencies. In a first meeting the main topics in current funding programmes were discussed. When the FET Flagship topics become clear, the group will meet again to discuss alignment with national priorities.

The ongoing study on FET Flagships has recently issued a report on the comparative analysis of previous flagship-like initiatives, focusing on best practice and success factors. The document, downloadable from the FET Proactive

website, stresses the importance of individual leadership and the sense of shared ownership and identity among participants; the focus on a clear "mission"; and the continuous involvement of communities and stakeholders in the shaping of the programme. While based on areas of clear European excellence, the initiatives should also engage in international partnerships to promote global impact.

Next Steps

The next part of the process is the opening of the Call for proposals for Coordination and Support Actions (the so-called FET Flagship Pilots) at the end of July 2010. **The deadline for proposal submission is 2nd December 2010 (17h00 Brussels time).**

The Pilots will have to design their candidate Flagship Initiative, including the presentation of key components such as the description of an operational framework, an integrative research agenda, management of resources and the demonstration of commitment from stakeholders.

To promote the setup process and the necessary collaboration, the Commission invites proposers to submit 5-page draft descriptions of the candidate FET Flagship ideas by 15th September 2010. This preliminary information will help to raise the visibility of proposals, and facilitate the involvement of key stakeholders from an early stage.

On 30th September 2010 in Brussels a FET Proactive info day on Pilot Flagships and other FET actions will take place. In addition, there will be possibility for pre-proposal feedback from this date until four weeks before the end of the call.

All info on FET Flagship Initiatives at:
<http://cordis.europa.eu/fp7/ict/programme/fet/flagship/>
Info day 30 September
http://cordis.europa.eu/fp7/ict/fet-proactive/ie-sept10_en.html

News from FET

Science beyond Fiction @ the European Parliament

20-21 April 2010

The "Science beyond Fiction" event at the European Parliament in Strasbourg proved to be an excellent occasion to promote the achievements and the new strategy for the ICT research on Future and Emerging Technology (FET) to the new Members of the European Parliament and in particular the members of the ITRE (Industry, Research and Energy) Committee.

Twelve FET projects organised in 6 stands were able to present and demonstrate their final or interim research results.



The event attracted the attention of many parliamentarians with a peak during the opening (see picture) where speeches were given by Ms. da Graça Carvalho, MEP and member of the ITRE Committee; Mr. Jerzy Buzek, President of the European Parliament; Ms. Neelie Kroes, Vice-President of the Commission; and Mr. Herbert Reul, Chairman of ITRE Committee.

FET Seminar

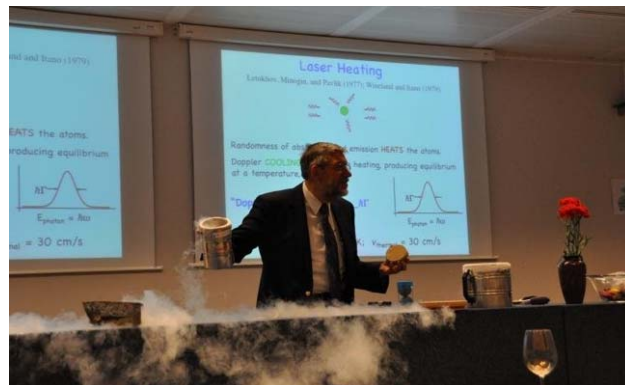
"Time and Einstein in the 21st Century", April 12th 2010

To mark the arrival of the 1,000th short proposal to the FET-Open Scheme in FP7, FET-Open invited William D. Phillips, 1997 Nobel Prize Laureate in Physics to talk to Commission staff about how Einstein changed the way we think about nature.



Bill Phillips explained to us how Einstein's thinking is shaping one of the key scientific and technological wonders of contemporary life: atomic clocks, the best timekeepers ever made. Such super-accurate clocks are essential to industry, commerce, and science; they are the heart of the

Global Positioning System (GPS) that guides cars, airplanes, and hikers to their destinations. The presentation was very interactive, and quite entertaining, as you can see from the photo below!



The lecture explained in simple terms the functioning of atomic clocks and demonstrated their relevance for modern information and communication technology (ICT). It really drove home the point that fundamental research can impact technology and society in really unforeseen ways.

Bill Phillips works at the US Joint Quantum Institute at the University of Maryland and the National Institute of Standards and Technology, Gaithersburg. He was awarded the Nobel Prize in Physics in 1997 for development of methods to cool and trap atoms with laser light. The prize was shared with Steven Chu of Stanford University and Claude Cohen-Tannoudji of the École Normale Supérieure, Paris.

FET11 Conference Mark your diaries!

Following on from our exciting FET conference in Prague last year FET is pleased to announce that the next FET conference will take place in Budapest on 4-6 May 2011. The conference is organised in collaboration with a coordination action led by ERCIM and in the coming months calls will be launched for sessions, exhibition and posters.

We are also pleased to announce that the FET09 conference report and video testimonies are now online.



http://ec.europa.eu/information_society/events/fet/2009/videotag.html
http://ec.europa.eu/information_society/events/fet/2009/catalogue/sciencebeyondfiction.html#

FET at the 2010 Lindau Nobel Laureates Meeting

A representative of FET-Open attended the Nobel Laureate Meeting at Lindau, Germany, which took place this year from June 27th until July 2nd 2010. This exciting event on the shores of Lake Constance at Lindau was attended by 59 former Nobel Laureates and some 650 young scientists from around the world. At the event the European Commission hosted a Europe day including breakfast, lunch and a get together event for young scientists.

The Lindau Nobel Laureates Meetings take place yearly in Lindau. FET-Open was attracted to this particular event for two reasons. This year's focus was on multidisciplinary, which is a key theme for the FET Programme. FET is also launching this year its new Young Explorers call, and the Lindau experience was a great opportunity to meet with young scientists from all over the world to discuss this face to face.

<http://www.lindau-nobel.org/WebHome.AxCMS>
more info: paul.hearn@ec.europa.eu

FET meets with NSFC

Following an earlier visit from FET to China, the Director General of National Natural Science Foundation of China (NSFC), Mr. Han, met with FET in Brussels. NSFC is a fast growing programme involving key scientists. Several topics linked to ICT were identified for possible joint China-EU projects in the future. The exchange of young researchers was also mentioned as a way to strengthen ties. Leading up to this, the new work programme for FET has a number of opportunities for international collaboration, including for example coordination actions in the area of Dynamics of Multi-Level Complex Systems.

<http://www.nsf.gov.cn/Portal0/default106.htm>

La vie des projets

LIQUIDPUB: Going liquid

The way scientific knowledge is shared has been essentially the same for centuries. The “paper” and peer review are still the cornerstones of the dissemination and evaluation process, and the only relationship between papers is defined by citations stated by authors at the time of writing. In the meantime, the Web has changed the way we work in nearly all disciplines but the only way in which it seems to have affected the dissemination process is in enabling the “numbers game”, as called by Parnas, which leads researchers to work towards maximizing publication metrics of dubious validity sometimes at the expense of do-

ing science. It also generates a lot of “noise” which makes it difficult to find knowledge in a sea of information.

LIQUIDPUB proposes new and more efficient, fair, and effective paradigms – and enabling platforms – that are largely inspired by the social web. The project advocates a model for scientific dissemination in which the paper is no longer the only unit of dissemination: experiments, datasets, and even blogs can also be first-class citizens in the work of science. Where relationships among scientific contributions (or parts thereof) can be defined by anybody at any time (so readers can create knowledge, too!) and can have various semantics, beyond citations. And, where the quality is not assessed (only) via peer review or citations but by what the community at large thinks about the contribution or is interested to know about ideas and results from a certain scientist.

To achieve this, the project aims at capturing the implicit knowledge about scientific contributions, about their quality, and about how contributions are related among them, knowledge that each of us forms everyday in our work when we read papers, but that we never bother to state (or that we say only to our colleagues and team) because we are busy, we see no personal benefits in sharing our opinion, or we simply do not know where and how to provide this knowledge. If we manage to tap into this gold mine, we can enable an entirely new evaluation and dissemination process.

LIQUIDPUB aims at doing exactly this, along with a viral dissemination model where contributions may still be submitted in the traditional way, or they may be simply posted and “picked up” by the community, much like what today happens in the dissemination of news, where the Web makes instantaneous what in the pre-Web world took months.

The most challenging part of the project lies in making it “selfishly” convenient for people to adopt these new models because they feel it helps their research, and this is also why the project is developing tools with this goal also in mind. These models and tools support what the project calls liquid conferences, liquid books, and liquid journals. Readers of this newsletter can learn more and begin to play with the tools at project web site below. The project and the software are open and the project team would love to join forces with you!

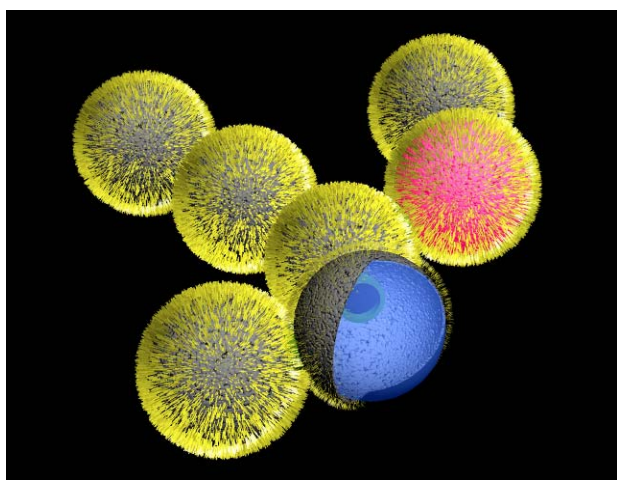
<http://project.liquidpub.org/>

Computation in a Structured Soup neu-n.eu (CHEM-IT)

The architecture and function of brains differs radically from information technology as we know it: a brain is essentially a structured liquid computer in which chemicals are used to transmit information, and the operation of its components is much slower than electronic circuits. Nevertheless, the human brain is the most powerful information processor known. What would an information technology look like that uses key features of a brain? What might be achieved with such a technology? These are the questions the NEUNEU project has set out to answer.

The project, entitled 'Artificial Wet Neuronal Networks from Compartmentalised Excitable Chemical Media', is a transdisciplinary collaboration among computer-scientists, biophysicists, chemical-physicists, biochemists, and electrical engineers from the University of Southampton, the Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, the University of the West of England, Bristol, and the Friedrich Schiller University Jena, who is coordinating the project.

Its three-year research program is concerned with the development of mass-producible chemical information processing components and their interconnection into functional architectures. In particular the project will engineer lipid-coated water droplets, inspired by biological cells, containing an excitable chemical medium. Many droplets will be connected into a network in which they can communicate through chemical signals (cf. Figure below).



© Figure by Gareth Jones

The figure illustrates the basic idea of the NEUNEU project. Droplets coated with lipids (yellow) are filled with excitable chemical media (blue) and connected by channels such that activity waves (red) can spread from one droplet to another.

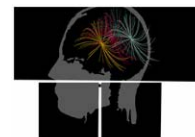
Then the project will study the information processing capabilities of different configurations of these droplets and explore the potential

and the limitations of droplet architectures, both from a theoretical perspective and with laboratory prototypes. The goal is not to make a better computer than conventional silicon-based ones but rather to be able to compute in new environments. This should open up application domains where current IT does not offer any solutions, such as, controlling molecular robots, fine-grained control of chemical assembly, and intelligent drugs that process the chemical signals of the human body and act according to the local biochemical state of the cell.

[More on the Project](#)

neu-n.eu and <http://users.minet.uni-jena.de/~ditttrich/>

hiVE HYPER
INTERACTION
VIABILITY
EXPERIMENTS



Could computers someday interact directly with the human brain?

In the next 50 years we will witness the coming of age of technologies for fluent brain-computer and computer-mediated brain-to-brain interaction. While recent research has delivered important breakthroughs in brain-to-computer transmission, little has been achieved in the other direction –computer-controlled brain stimulation. HIVE's goal is to probe the limits of non-invasive computer-to-brain interfaces by carrying out research using improved brain stimulation paradigms to explore fundamental neuroscience questions and applications, and by designing and testing more powerful, controllable and safe non-invasive brain stimulation technologies.

HIVE is a 4-year FET Open project (2008-2012) coordinated by Starlab. The project is developing improved electrical current distribution and multi-scale neuron-current interaction models and carry out stimulation experiments using tDCS, TMS, EEG and fMRI in different scenarios, and based on these develop multisite transcranial current stimulation technologies implementing real time EEG monitoring. HIVE is also exploring high-level communication using stimulation as well as 'sense synthesis', that is, the construction of new perceptions deriving from sensors interacting directly with brains through stimulation systems.

This project targets a paradigm shift in interaction, and represents a potential radical breakthrough which could eventually impact the foundations of ICT in a manner similar to the invention of speech or writing, since it opens the door to the vision of the ultimate union of humans and machines. Machine-to-brain communication would allow for faster and multi-

dimensional communication between people. Social progress and technology evolution owe a great deal to human information exchange at different levels, including verbal and written. Interaction with increasingly intelligent machines will only become more important with the passage of time. Sensor-to-brain communication could greatly expand our understanding of perception, cognition, and consciousness, ie what it is to be human. It is fair to say that our understanding and experience of the universe if fully mediated by our natural sensors. Bypassing them could change fundamental aspects of human nature and experience.

Current and new applications of brain stimulation that would benefit include research, diagnosis, therapy (for neurological conditions like Parkinson's disease, dystonia, tinnitus and psychiatric conditions like clinical depression or auditory hallucinations), brain-computer interfacing (BCI) and sense-synthesis.

<http://www.hive-eu.org/>

PHOME and invisibility cloaks

Scientists working in the PHOME project have created the first device to render an object invisible in three dimensions.

The "cloak", described in the journal *Science*, hid an object from detection using light of wavelengths close to those that are visible to humans.

In addition to being reported in *Science*, the story was also picked up on the BBC News website.

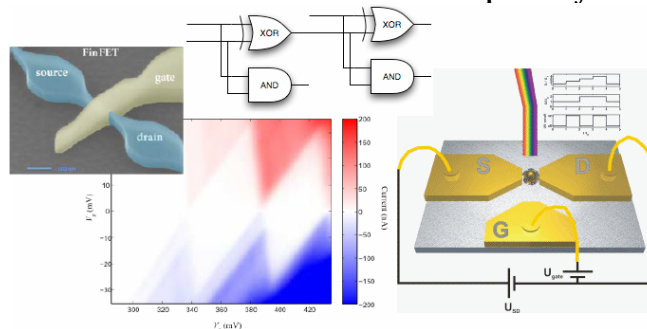
<http://news.bbc.co.uk/2/hi/science/nature/8574923.stm>
<http://www.sciencemag.org/cgi/content/abstract/sci.328/5976/337?maxtoshow=&hits=10&RESULTFORMAT=&fulltext=cloak+ergin&searchid=1&FIRSTINDEX=0&resourcetype=HWCIT>

Molecular Logic Circuits

MOLOC - Molecular Logic Circuits - aims at the design and demonstration of the basic principles, feasibility and significant advantages of logic circuits, which emphasize the internal states of a single molecule (or of assemblies of atoms or molecules) as the basic element. Rather than being used for a mere switching operation, the molecule is designed to act in itself as an entire logic circuit. Molecules (or nano-structures, dopants in bulk material, etc...) exhibit multiple (quasi)stationary states by virtue of their confined size. We therefore make an advantage of the nanoscale, which is imposed by the cardinal technological need to reduce the size of the circuit. Beyond this MOLOC further reduces the scale by implementing logic operations directly at the hardware level and by designing circuits in

which the logic goes beyond two-valued Boolean algorithms, i.e. the variables are not restricted to be either true ($\equiv 1$) or false ($\equiv 0$). A notable feature of the MOLOC project is the close collaboration between experiment and theory.

The figure below shows a CMOS compatible FinFET transistor used to realize experimentally a complete full addition, equivalent to 32 switching operations¹. Work is in good progress to cascade such transistors to realize multi digit additions. An all optical half addition has been realized by applying sequences of two overlapping laser pulses to coherently manipulate the quantum states of a rare-earth ion doped crystal.



Work is in progress for combining electrical and optical addressing and such a device is shown in the right panel of the figure. By building an all-nucleic-acid-based

computational platform that uses a library of catalytic nucleic acids (DNazymes) and their appropriate substrates, the input-guided parallel assembly of a universal set of logic gates, and the construction of multi-layered gate cascades and fan-out gates were demonstrated².



Copyright by Aline Elbaz

Significant progress is also being made by the MOLOC partners in the design of multivalued logic schemes. The realization of a ternary multiplier, a two ternary input device, has been demonstrated experimentally by electrical addressing of a given charge state of a dopant atom in a Fin FET transistor³ and of a Si nanoparticle embedded in an insulated protein and mounted on a gold surface⁴.

Current effort in MOLOC look for implementing finite state machines on a single nanodevice and for cascading logic units.

1. Klein, M.; et al., Reconfigurable Logic Devices on a Single Dopant Atom up to a Full Adder by Electrical Spectroscopy. *Chem-PhysChem*. 2009, 10, 162-173.
 2. Elbaz, J.; et al., DNA Computing Circuits Using Libraries of DNazyme Subunits. *Nature Nano* 2010, 5, 417-422.

3. Klein, M.; et al., Ternary Logic Implemented on a Single Dopant Atom FET in Si. *Appl. Phys. Lett.* 2010, 96, 043107.

4. Medalsy, I.; et al., Logic Implementations at the Nanoscale Using a Single Nanoparticle-Protein Hybrid: Boolean and Beyond Boolean Finite State Machines. *Nature Nanotechnology* 2010, 5, 451-457.

For more information on the MOLOC achievements, see <http://www.moloc.ulg.ac.be>

On-chip simultaneous intracellular recording and stimulation – BRAIN STORM

Interfacing neurons with microelectronic devices for uses such as neural network analysis, neural prosthetics and brain-machine interfaces has been a subject of intense studies over the last decades. Micro- and nano-devices are designed to provide multisite, long-term, non-invasive extracellular stimulation and recording of field potentials generated by hundreds of individual neurons. A critical limitation in the current design-concepts and fabricated devices is the weak electrical coupling formed between the components. This is attributed to relatively large space formed between the neurons and the artificial substrate to which they adhere.

Driven by a cell-biological approach the “Brain Storm” project recently reported in a series of papers on the development of a break through neuro-electronic interface consisting of an array of noninvasive gold-mushroom-shaped microelectrodes that practically provide intracellular recordings and stimulation while the microelectrodes maintain an extracellular position. The development of this interface allows simultaneous, multi-site, long-term recordings of action-potentials and subthreshold synaptic potentials with matching quality and signal-to-noise ratio of conventional intracellular sharp glass microelectrodes or patch electrodes. The novel approach, which unlike conventional intracellular methods, allow for parallel multi-site recordings and stimulation, differs from the prevailing methodologies (of intracellular recordings or patch clamping) mainly in that rather than to use our “muscles” to push the electrode into contact with the cells, and break its membrane, we “persuade” the neurons to use their own “muscles” to “swallow the bait-microelectrodes” and thus bring the cell and the microelectrode into the needed level of physical intimacy.

Adaptation of the “In-Cell recordings and Stimulation” concepts to mammalian neurons is now on its way. When successful the novel approach is expected to revolutionize the analysis of neuronal networks in relations to learning, memory to develop novel drugs as well as high fidelity neural prosthetics and brain-machine interfaces.

Hai, A., et al. *Nat Methods* 7(3), 200-202 (2010).

Hai, A., et al. *J. Neurophysiol.* doi:10.1152/jn.00265 ahead of print (2010)

Hai, A. et al. *Journal of Neural Engineering* 6,66009 (2009).

Hai, A. et al. *Journal of the Royal Society Interface* 6, 1153-1165 (2009)

SOCIONICAL NEWS LETTER

Contact the coordinator Maggie Ellis

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Product Feature - intendiX

Communication by thoughts: First patient-ready system on the market

For more than 20 years researchers all over the world have been working on the development of a Brain-Computer Interface (BCI). This is a direct communication channel between the brain and a computer. Such a system enables completely paralyzed patients to communicate or to control devices in their environment just by mental activity. During the last years some patients have been supervised by the researchers themselves to use such BCI systems in daily life. The Austrian company g.tec medical engineering GmbH, a regular partner in FET projects, now brings the first patient-ready BCI on the market. The EEG-based spelling system is called intendiX and enables the user to select keys from a matrix just by paying attention to a target symbol on the screen.

In this way the patient can write messages or commands. intendiX can speak the written text, print it or copy it into an e-mail message. The system is designed to be used without the assistance of a technician and can be installed and operated by the caregiver. For most users intendiX works pretty fine after only a few minutes of training. For paralyzed patients the system has to be tried and evaluated in every specific case. Therefore g.tec provides systems for rent to patients and hospitals. g.tec is a worldwide provider of hard- and software for biosignal and BCI research and has been actively cooperating with worldwide leading research-groups for many years.



GUGER
TECHNOLOGIES

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Forthcoming events

FET'11 Conference – Budapest

4-6 May 2011

Book your agenda!

Call 7 info-day

30 September 2010 – Brussels

The purpose of this infoday is to present the FET mission and its related policy actions, specifically the FET Flagships and other upcoming actions. There will also be time for the presentation of the latest results from the FET Flagships study, presentations from different potential CSAs and networking amongst interest proposers. An agenda with further details can be found at the link below..

http://cordis.europa.eu/fp7/ict/fet-proactive/ie-sept10_en.html

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.

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