



### Welcome to Action TD1007

Welcome to the 4<sup>th</sup> Action's TD1007 Newsletter.

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### Dublin MPNS Annual Progress Conference

The Annual Progress Conference of the Materials, Physics and Nanosciences (MPNS) Domain took place between 11<sup>th</sup> and 12<sup>th</sup> of September 2012 in Dublin, Ireland. In this annual meeting all Action Chairs present the status of their Action to COST DC members and MPNS Action Chairs. George Loudos presented the activities for the first year of the TD1007 PET/MR Action.



### WG3 and WG4 meeting in London

The joint WG3 and WG4 Action meeting was held on November 29<sup>th</sup> 2012, at St. Thomas' Hospital, King's College London.

This has been the first meeting in which all the WG members with a chemistry/biology background had an opportunity to describe results and ideas related to PET-MRI rather than their own past work.

23 presentations were given, were almost half of them were based on results of common work between Action partners. The meeting was attended by more than 40 Action members, as well as scientists from London.

New concepts and ideas emerged from this meeting, such as the potential of using hyperpolarized probes in PET-MR, cell tracking with bimodal probes and new concepts for the development of imaging probes for PET-MR applications. Preclinical PET-MR scanners or MR-compatible PET inserts, as well as radioisotopes/equipment are available to the WG groups. Members were encouraged to develop ideas and projects to make use of this unique opportunity. Several inter and intra WG STSMs have been already finalized and joint publications are already being prepared. It was decided that the next WG3-4 meeting will take place on the 8th of May 2013 in Aachen. In the future presentations should be increasingly be based on STSM results

### Aachen PSMR 2013 Conference

After the most successful MR-PET workshop PSMR2012 on Elba in May 2012, the Action announces the 2<sup>nd</sup> Action PSMR. This conference is planned as a two day event and will take place between May 6<sup>th</sup> and 7<sup>th</sup>, 2013, in Aachen, Germany.

Once again the program will offer the whole spectrum of topics related to MR-PET and MR-SPECT in small animal, brain, and whole-body imaging from instrumentation, methodology, applications to bimodal tracers. As during the



previous workshops there will be ample time for discussions. A special even for the ESRs is being planned and it will include a special poster session.

More info can be found on the conference website [http://www.fz-juelich.de/conferences/psmr2013/EN/Home/home\\_node.html](http://www.fz-juelich.de/conferences/psmr2013/EN/Home/home_node.html).

The 3<sup>rd</sup> joint <C and WG meeting will take place after the conference, on May 8<sup>th</sup> 2012 in Juelich.

### Short Term Scientific Missions

Until the end of December 12 additional STSMs were implemented (or are still under implementation). In total 21 STSMs have been approved and more applications are being received. In addition the duration of most STSMs is increasing, since Action partners exploit unique equipment that is available in few groups, as well as existing animal models and bimodal probes. The performed STSMs have provided several common results and a number of Action papers has been accepted for publication. These STSMs were:

**Dr Kathleen Vunckx**  
*Katholieke University, Leuven, Belgium*

Dr Vunckx visited the group of Brian Hutton at University College London, for 3 months in February 2012. The aim of the visit was to

extend on her development of algorithms for use of anatomical side-information during PET reconstruction and validate the new algorithms for cardiac or tumour imaging, taking advantage of the ongoing research and unique facilities at University College London.

**Mr John Barrio**  
*IFIC (UVEG/CSIC), Valencia, Spain*

Ms Barrio visited the group of Sibylle Ziegler at Nuclear Medicine department of TUM, Muenchen, Germany for three weeks. The aim of this visit was to perform the very first tests with digital SiPMs (dSiPMs) recently received in the Nuclear Medicine department of the Technische Universität München (TUM) and make some characterization tests to study the potential compatibility of such a technology with a MRI scanner. This STSM allowed the applicant to have a first contact with the PET/MR world and work within the clinical and methodological PET/MR group at TUM.

**Dr Anastasios Gaitanis**  
*Biomedical Research Foundation of the Academy of Athens, Greece*

Dr Gaitanis visited King's College London, UK and worked with Dr. Charalampos Tsoumpas for eight days. The objective of this STSM was to work on the development of image reconstruction algorithms for this PET/MR. Moreover, the applicant had the opportunity to gain experience in the application of high-computing (parallel processing using STIR software) methods in PET/MR.

**Mr Florin Tixier**  
*INSERM UMR 1101 LaTIM, Brest, France*

Mr Tixier visited Dr. Gaspar Delso at the Department of Medical Radiology in Zurich for one week. The main objective of his work was to collect data from the PET/CT - MR local set-up to investigate the usefulness of new 18F-FDG PET image derived indices for patient's management in oncology. Mr Tixier collected original patient data, which will be exploited in Brest.

**Ms Maria Georgiou**

*Department of Medical Instruments Technology,  
Technological Educational Institute of Athens,  
Greece*

Ms Georgiou visited the group of Dr. Dennis Schaart at Faculty of Applied Sciences, Delft University of Technology, Delft for two weeks. The aim of this follow up visit was to evaluate the imaging performance of digital SiPMs, by performing experiments with pixilated scintillators and collect data for image construction, using different position calculation algorithms. Besides PET, the SPECT performance of digital SiPMs has been investigated for the first time.

**Mr Tomasz Szczesniak and Ms Martyna Grodzicka**

*National Centre for Nuclear Research, Otwock-Swierk, Poland*

During this joint STSM, Mr Szczesniak and Ms Grodzicka visited the group of Dr. Claudio Piemonte at Fondazione Bruno Kessler in Trento, Italy for two weeks. The aim of this visit was to perform measurements of inorganic scintillators (others than LYSO) with light readout by means of FBK silicon photomultipliers. The scintillators that were tested were LFS, BGO, CsI(Tl) and BaF<sub>2</sub>.

**Mr Nikolaos Efthimiou**

*Department of Medical Instruments Technology,  
Technological Educational Institute of Athens,  
Greece*

Mr Efthimiou visited the University of Lisbon, Portugal for one month and worked under the supervision of Prof. Pedro Almeida. The aim of this visit was to assess the performance of STIR software for the reconstruction of images from planar PET systems, as well as to develop a

non-rotating image reconstruction algorithm for dual head PET/MR system.

**Dr Rafael Torres**

*King`s College London, UK*

Dr Torres visited Dr. Balazs Gulyas at Karolinska Institute in Stockholm Sweden, for five days. The aim of his visit was to use the preclinical PET-MR scanner available at the Karolinska Institute, to image a phantom suitable for bimodal PET-MR agents that were recently synthesized at KCL.

**Current STSMs**

Three more STSMs are being carried out at the moment and will be reported in the next Newsletter.

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**Action website**

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