April 2014

No 1

Erasmus Mundus
Euro-Asian Sustainable Energy Development

EM-EASED (2013-2017) is a Erasmus Mundus Action 2 programme that aims to bring **Europe** and the Far East (**Japan, Korea**) closer in the field of research and its management with a special emphasis on **energy**. By cooperating and working together, the EM-EASED partnership will contribute to the development of Euro-Asian bridges in excellence and help the promotion of scientific, economic and cultural exchanges. Facing the strong challenges for the European, Japanese and Korean knowledge society, EM-EASED will help universities and associated research centres to find adequate answers especially by promoting internationalisation, quality and excellence in their activities.

The EM-EASED Consortium is constituted by 16 Higher Education Institutions and Research Centres, namely, **École Centrale Paris** (France), **Université Libre de Bruxelles** (Belgium), **Technische Universität München** (Germany), **Politecnico di Milano** (Italy), **Universidad Politecnica de Madrid** (Spain), **Imperial College London** (UK), **Keio University** (Japan), **Okayama University** (Japan), **Tokyo Institute of Technology** (Japan), **Waseda University** (Japan), **Korea Advanced Institute of Science and Technology** (South Korea), **Pusan National University** (South Korea), **T.I.M.E.** (Top Industrial Managers for Europe), **von Karman Institute for Fluid Dynamics** (Belgium), **Japan Aerospace Exploration Agency** (Japan), **Korea Institute of Energy Research** (South Korea).

SELECTION MEETING

The EM-EASED consortium met on March 27th-28th in Busan, South Korea. The main purpose of this meeting was to select **the first candidates** for the programme.

Selection meeting, Busan, March 27th-28th 2014

This was also an opportunity for the coordinator (École Centrale Paris) to remind the objectives of the programme in terms of mobility flow and research orientation. The overall mobility flow shall be 65% European and 35% Japanese/Korean. The percentage of PhD mobility shall be between 55-65%, post-doctoral grant holder shall be between 10-20% whereas the remaining 20-30% shall be for staff. For this first cohort, 9 candidates were selected (5 PhD, 2 post-doctoral, 2 staff); 56% European and 44% Japanese/Korean.

At the same time, the consortium had discussions on the actions to be carried out for the promotion of the programme, especially for the **next call** for applications (September - October 2014). It is expected that all members will propose both specific research opportunities as well as wide fields. In the first call for positions, 183 offers were published, including 153 specific research fields, mainly for doctoral mobility.

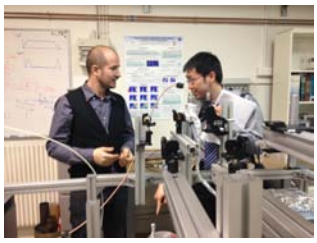
Other opportunities to exchange researchers were discussed. It was suggested that whenever possible, staff might apply to **invited professor** scheme, while still being considered as part of the EM-EASED programme. This alternative solution shall increase the number of overall staff mobility. As all mobilities are dealing with energy- related research, the EM-EASED programme strongly encourages grant holders to visit the other institutions of the consortium for a typical one-day visit and seminar.

The event was hosted by Pusan National University, in the **Busan campus.** Delegates of the consortium visited the host campus and laboratories.

Dr Sung presented his PhD thesis facility to some delegates, including the representative of Imperial College. Dr Sung will join Imperial College as a EM-EASED post-doctoral grant holder for 10 months.

ONGOING RESEARCH

As the first mobilities of the EM-EASED programme have not started yet, the ongoing research section presents a EM-BEAM grant holder's activities. The EM-BEAM (Build on Euro-Asian Mobility, 2010-2014) is the previous Erasmus Mundus Action 2 (Europe-Japan/Korea) also coordinated by École Centrale Paris and including most of EM-EASED partners.



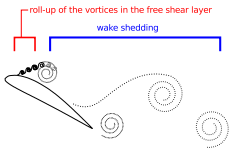
Mr Kentaro Kato, PhD student from Keio university is going to finish soon his 30-month mobility in Technische Universität München. Upon selection, the initial plan was to work on control of three dimensional vortex. The precise details were decided after literature surveys and discussions at the host institution. His research field deals with control of leading edge vortex on a delta wing. He has conducted several experiments on flow control over rectangle and swept wings using nanosecond pulsed plasma actuation.

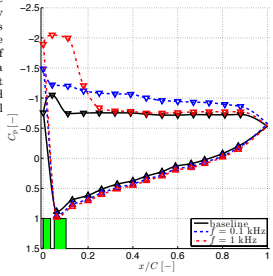
On April 1st, he came to École Centrale Paris to discuss on his results with researchers involved in quantitative plasma diagnostics. This one-day visit allowed him to have a glimpse of detailed nanosecond pulsed plasma physics. He took the opportunity to have a campus tour and to visit EM2C (Energetics & Combustion Laboratory of CNRS/École Centrale Paris). This kind of visit will be encouraged in the EM-EASED programme.

Active Flow Control over Gö 387 Airfoil Using Nanosecond Pulse DBD Plasma Actuator

(Position: PhD, Duration: 30 Months)

Flow control over Gö 387 airfoil using dielectric barrier discharge (DBD) plasma actuator driven by repetitive nanosecond pulse voltage was investigated experimentally. The pressure measurement on the airfoil surface by means of liquid column manometer shows that the plasma excitation in wide range of frequency can affect vortex structures with different time scales and increases the normal force in the post-stall condition.





Kato K. and Breitsamter C.: Flow Control on Gö 387 Airfoil by Using Nanosecond Pulse Plasma Actuator, In: International Conference on Instability and Control of Massively Separated Flows, Prato (2013)

FORTHCOMING EM-EASED MOBILITIES

The mobilities below will start before December 31st, 2014.

K Bergeles, Doctoral from Imperial to TITech for 6 months.	Experimental investigation of droplet atomisation and air entrapment in an internal combustion engine.
JC Larrieu, Doctoral from ULB to Okayama for 6 months.	Design, manufacture and experimental characterisation of an actuator based on piezoelectric polymer and rubber.
H Matsuoka, Doctoral from Okayama to ULB for 6 months.	Design, manufacture and experimental characterisation of rubber fluidic actuators.
P Jaen, Doctoral from UPM to Keio for 6 months.	Wood as sustainable material for dismountable architecture & urban design.
T Fujiwara, Doctoral from Okayama to TUM for 8 months.	3D environmental mapping by mobile robots for teleoperation in nuclear power plants.
H Bottini, Post-doctoral from ECP to Keio/JAXA for 10 months.	Fundamental study and assessment of skin friction measurement techniques in wind tunnel environment.
Y Sung, Post-doctoral from PNU to Imperial for 10 months.	Development and application of optical experimental methods for mixing of air and fuel in multiphase reacting flow.
S Lee, Staff from KAIST to TUM for 3 months.	Study of technical and economical potential of geothermal applications for heating and cooling in the urban areas of Munich.
R Mereu, Staff from PoliMi to TITech for 3 months.	Validation of Computational Fluid Dynamics modelling approach of the steam Direct Contact Condensation (DCC) phenomenon.

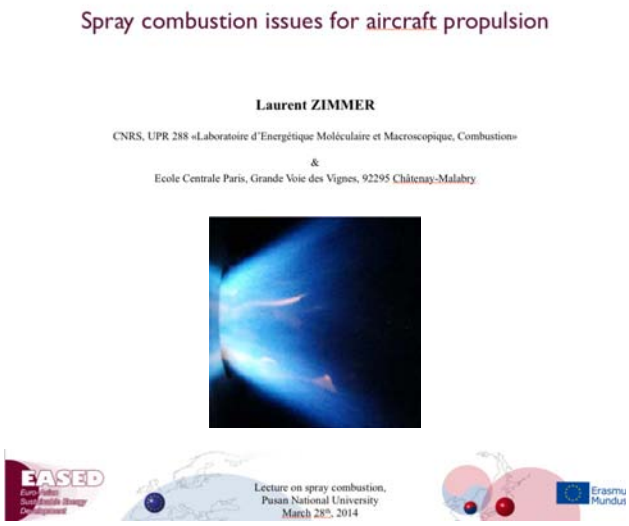
AUDIO-VISUAL RESOURCES

The EM-EASED programme has created an **audio-visual library**.

http://www.dailymotion.com/em-eased

Upon their arrival in the host institution, the EM-EASED grant holders will hold seminars or lectures that will be shared within the EM-EASED consortium.

The **first lecture** is now available. Dr. Zimmer (École Centrale Paris - CNRS) gave a 45-minute lecture while visiting Pusan National University. The subject was dealing with **spray combustion** issues for aircraft propulsion. After a general introduction, one new injection system was presented and issues for non-reacting, ignition and combustion dynamics were discussed based on high-speed laser diagnostics and advanced post-processing techniques.



ERASMUS MUNDUS

Erasmus Mundus is a cooperation and mobility programme in the field of higher education that aims to enhance the quality of European higher education and to promote dialogue and understanding between people and cultures through cooperation with Third-Countries. In addition, it contributes to the development of human resources and the international cooperation capacity of Higher education institutions in Third Countries by increasing mobility between the European Union and these countries.

The Erasmus Mundus programme provides support to:

- higher education institutions that wish to implement joint programmes at postgraduate level or to set-up inter-institutional cooperation partnerships between universities from Europe and targeted Third-Countries ;
- individual students, researchers and university staff who wish to spend a study / research / teaching period in the context of one of the above mentioned joint programmes or cooperation partnerships ;
- any organisation active in the field of higher education that wishes to develop projects aimed at enhancing the attractiveness, profile, visibility and image of European higher education worldwide.

PROGRAMME MANAGEMENT

The European Commission is responsible for the running of the Erasmus Mundus Programme 2009-2013. It manages the budget and sets priorities, targets and criteria for the Programme. Furthermore, it guides and monitors the general implementation, follow-up and evaluation of the Programme at European level.
The Education, Audiovisual and Culture Executive Agency (EACEA) is responsible for the implementation of the Erasmus Mundus Programme.

AGENDA

Start of first mobilities : From May 1st to December 31st, 2014.

Call for positions : June 1st to July 31st, 2014.

Call for applications : September 1st to October 30th, 2014.

Second selection meeting : November 2014

About the programme


Kick-off meeting, Paris
October 10th-11th 2013

EM-EASED programme (2013-2017) is mainly dedicated to **research exchanges** and is intended to establish a mobility scheme for about **72 individuals** including doctorates (58%), post-doctorates (17%) and staff (25%). More than 66% of the individuals will be European. This programme is a follow-up of a previous mobility scheme EM-BEAM (2010-2014) which was opened to a wide variety of research fields.

The previous programme helped, especially with the staff mobility, to build the first bridges between different research centres. The present programme is focused on **energy-related research** for two reasons. The first is that this societal problem came to be the main topic in EM-BEAM and a stronger bilateral cooperation seems beneficial to tackle this worldwide issue. The second is that the present programme aims at developing not only mobility within the different partners but at developing international research teams, well-recognised as far as energy research is concerned. Staff mobility will serve not only as a support of PhD students but also for sharing good practices and for developing **long-term cooperation**. It is expected that staff will use this mobility to contribute to the research performed by their students abroad. This research programme includes **Engineering and Technology**, as well as **Mathematics** and **Computer Science**, **Natural Sciences** or **Architecture fields**.

All of the administrative and research teams involved will benefit a lot from the opportunity to be pooled and to work together during the programme and its events. An effective coordination will set up and organise the necessary activities for the success of the programme, including the management of the consortium, the call for applications, the selection campaign, the mobility scheme implementation, the financial follow-up. Regular meetings as well as webminars are planned during the programme in different places. **A final conference** will be held in spring 2017 gathering all the stakeholders of the programme and providing visibility to it. This conference will show effective results of this international collaboration and will be broadly opened also to attract industrial partners, having interests in this Euro-Asian network. Towards the end of the programme, a **scientific committee** including staff from each partner and associate institution will be created to co-ordinate all the different aspects of sustainable energy research, attract new funding and create a **Euro-Asian laboratory on Energy**.

Mobility grants for doctoral, post-doctoral and staff candidates

Different grants are available according to the mobility type and open positions. The number of outgoing fellows will be on average 5 doctoral, 1 post-doctoral and 2 researcher/staff candidates per European institution and 2 doctoral, 1 post-doctoral and 1 researcher per Japanese/Korean institution for the entire programme. Priority will be given to staff linked to an outgoing doctoral mobility.

Details of the grants		
Doctoral	1500€/month	6 - 36 months
Post-doctoral	1800€/month	6 - 10 months
Staff	2500€/month	1 - 3 months

Cohort	Applications	Start
1	06/01/14 ~28/02/14	01/05/14 ~31/12/14
2	01/09/14 ~31/10/14	01/01/15 ~31/12/15
3	15/09/15 ~31/10/15	01/01/16 ~31/12/16

EM-EASED timetable

Three different cohorts of mobility are scheduled for this programme, each with its specific call for positions, call for applications, selection meeting and start of mobility. For all cohorts, the mobility has to end **before July 2017.**

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