



07 October 2015

### ELICiT pulls in the crowds at ICR2015!

**Once again the ELICiT project on magnetic cooling proved attractive to attendees at ICR2015 in Yokohama.**

On 21 August, the second ELICiT workshop took place in Yokohama, Japan, during the 24th International Congress of Refrigeration. Held at the Pacifico Yokohama Convention Center, the workshop welcomed over 70 participants from around the globe.

Moderated by Didier Coulomb, Director General of the IIR, the presentations covered the progress made by three of the consortium partners (Cambridge, Re/gent and Cemafrroid) towards a domestic refrigerator using magnetic cooling technology.

Alessandro Pastore from Cambridge presented ELICiT components optimization towards performance achievements made over the last 18 months. So far:

- Hot and cold exchangers have been implemented that meet the specifications required.
- The in-production appliance cabinet has been modified with the optimised heat exchangers.
- The magnetic cooling engine now incorporates the latest generation of magnetic regenerators, delivered using scalable manufacturing processes.

Marcel Van Beek from Re/gent, consortium partner for technology development, presented the heat exchanger designed for minimum temperature lift. He also detailed

current typical HEX designs for domestic cold appliances which was followed by designs to be considered as next step.

Gérald Cavalier showcased Cemafrroid's activities and analysis of Magnetic Refrigerator compliance with existing regulations and standards followed by a draft test methodology for prototype benchmarking. This follows the company's long term objective to develop, along with the IIR working group, initial standards for domestic refrigerators using magnetic cooling technology in order to favour market uptake of this new technology.

The second ELICiT workshop was a unique opportunity for consortium partners to present the project to an international audience as well as to underline the European Union project framework as a world class scheme to push magnetic refrigeration technology forward to the marketplace.

18 December 2015

### ELICiT presents results at 18-month technical review

**On 13 November 2015, the technical reviewer appointed by the European Commission visited the Cambridge Ltd. head office in Cambridge, UK, to assess the work carried out within the framework of the ELICiT project.**

The EU project routine meeting was the occasion to present the results of the first 18 months of the project achieved by the ELICiT consortium composed of 9 partners, located in 5 European countries.

"I always found the half-project meetings with the external technical reviewer appointed by the EU Commission highly rewarding for all the partners. In particular, in this case it was really fascinating to have the opportunity not only to go through the deliverables and the project plan, but also to show in one place all the pieces of hardware so far developed under the project by all partners" said Neil Wilson, CEO of Cambridge, adding "the high collaborative spirit among the partners clearly transpired from every single piece shown."

The EU Commission technical reviewer came to the meeting having carefully studied all the relevant documents about the project. "This definitely made the meeting very productive as we had the opportunity to integrate the already presented results in the deliverables of the project, with written material about how the project will move forward in the second half of its life, as well as the pieces of hardware so far developed," said Raffaele Paganini who, on behalf of Whirlpool R&D, led the meeting as a Project Coordinator. At the end of the meeting, the EU reviewer was very satisfied and impressed by the high quality of the material and evidence provided during the meeting, now being able to provide the technical review report of the project to the EU Commission Project Officer.

"The public results of project will be communicated, as usual, through the project newsletter and website as well as at the 7th International Conference on Magnetic Refrigeration at Room Temperature (ThermagVII)" said Ina Colombo, Deputy Director of the IIR; ELICiT partner in charge of dissemination activities, who also attended the meeting in Cambridge.

#### Events

##### **Last ELICiT Workshop**

**ThermagVII  
11-14 September 2016, Turin, Italy**

Be sure to attend the 3rd and final ELICiT workshop at the 7th International Conference on Magnetic Refrigeration (ThermagVII).

We look forward to seeing you there!

**Find out more at [elicit.project.eu](http://elicit.project.eu)**



The ELICIT consortium at their first progress meeting



The kick off meeting at Whirlpool R&D headquarters

## Partner News

### Camfridge

Within the EU DREAM project Camfridge reduced the use of rare earth by 74% in its magnetic cooling engine for domestic fridges with no use of heavy rare earth, also dramatically improving the Life Cycle Assessment and the projected final cost.

### Cemafruid

During the IIR International Congress of Refrigeration in Yokohama, Gérald Cavalier, Cemafruid President, presented its progresses in Standardization and Regulations activities. Testing protocol for benchmarking activities of the whole appliance has been set up.

### International Institute of Refrigeration (IIR)

The IIR will liaise with the ThermagVII conference organizers to facilitate the last ELICIT workshop in Turin (Italy) in 2016. The IIR is still working closely with the Industry Sub-Working Group on Magnetic Refrigeration as the standardization phase of the project will take place in Year 3.

### Politecnico di Milano

POLIMI is going to optimize, through the direct involvement of technical partners, the Decision-Support System for the comparison of performances, and environmental and economic impacts related to conventional and magnetic refrigeration systems. In addition, a web-based version of the current tool will be developed at the end of the project.

### PSUtec

During Year 2 PSUtec, in collaboration with the coordinator, has developed an improved process for the control of the quality of the deliverables. The goal was to simplify the procedure, clarify the roles and set-up a tracking tool allowing to see the progress of the process at a glance. We have also provided assistance to the partners in the submission of their cost statements.

### Re/gent

The conceptual heat exchangers designs developed were practically validated and we are pleased to have reached the project target. The target of rejection the system heat at  $T < 5$  K was met for the heat exchanger warm side and the performance of the heat exchanger cold side, absorbing the heat at  $T = 6$  K, is close to the project goal.

### TCS Micropumps

TCS Micropumps continue development of the amazing MG1000 pump. It is seal-less, brushless with proven reliability and very long life. Although small, it delivers the required performance of the magnetic refrigeration system with precision. Recent development has focused upon raising efficiency to unsurpassed levels. In parallel, TCS are developing the all new "R" pump, promising significant advantages over all other pumps, with low environmental impact and production costs.

### S.C.I.R.E

Prototype definition has been completed after the first numerical design. Procurement and cutting process of the foam were the preliminary steps to build the heat exchanger. Tests underlined that brazing technologies and copper coating of the foam were needed to obtain a good junction between the aluminum foam and copper pipes. Experimental tests allowed for performance evaluation.

### Whirlpool R&D

Whirlpool is continuing its adventure in the ELICIT project. The analysis is currently focused on the identification of the potential benefits of all the new components integrated into the appliance and to evaluate the overall achievements obtained with this radically new cooling technology.



Modified domestic fridge cabinet connected to the ELICIT magnetic cooling engine

## Events

### ThermagVII, Turin Italy — 11-14 September 2016

Attend the third and final ELICIT Workshop where further results will be presented!

Find more news at [elicit.project.eu](http://elicit.project.eu)



#MagneticCooling



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration.

Camfridge

PSUtec

cemafruid  
L'EXPERT DU FROID



POLITECNICO DI MILANO

RE GENT

