



Editorial

Dear readers,

thank you for your interest in the HELM Project.

In this third newsletter you find:

- The most recent achievements of our research

- Two inside stories about HELM technology providers

- A brief report on our last meetings and project review.

I hope you enjoy reading this newsletter and we would appreciate your feedback.



Andrea Lazzeri
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HELM in brief

HELM project is progressing crucial stage, as we are towards its expected currently entering the results, despite some industrial phase. We are difficulties previously confident in the envisaged encountered in the design results” – commented and development phase of Andrea Lazzeri, Project the MW and RF furnaces for CVI, LSI, PIP and GE. Prototypal plants of the different technologies have been build and they are going to be scaled up, tuned and validated, with the objective to make them easily engineered and marketable.

“The project is now at a



Assembly of the pilot MW-CVI plant in Pisa

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HELM

Grant Agreement No.: 280464

Programme acronym: FP7-NMP

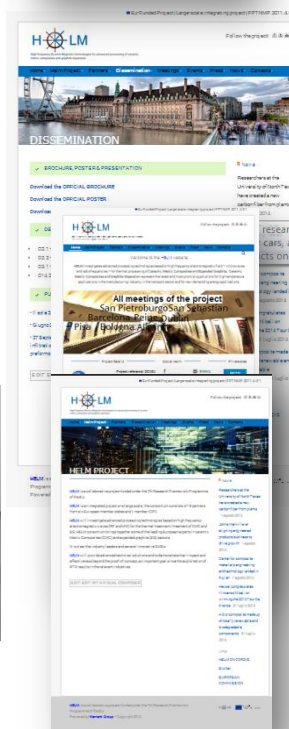
Topic:
NMP.2011.4.01 New technologies based on physical processing of materials for mechanical or electrotechnical applications

Start date: June, 1st 2012
End date: May, 31st 2016

EU contribution:
7,151,000 €
Total cost:
10,285 626 €

SPECIAL POINT OF INTEREST

New web site!

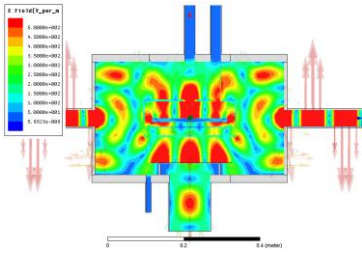




High temperature MW furnaces

Sairem Ibérica designs and fabricates microwave (MW) furnaces to process materials at high temperatures. The use of microwaves enhances the processing of silicon carbide (SiC), carbon fibre reinforced composites (CFR) and other carbon-type materials, by cutting down the processing time, and saving energy.

However, such materials are almost conductive, and many issues like arcing, hot spots, and plasmas may appear when processed in a MW furnace. Thus, the design of the MW furnace has to consider those issues by properly selecting the materials that compose the furnace, and by exciting the MW furnace in a way that arcing problems are significantly reduced. Therefore, numerical simulation software is used in the electromagnetic and thermal design and optimization of the MW furnace, because it is a way to figure out how microwaves propagate and interact with the material under process inside the furnace.



Sairem
microwave&radio frequency

Sairem Ibérica S.L. is a Spanish company, which focuses its activity in electromagnetic energy applications. The company is specialised in design and manufacturing of equipment and computer simulation of Microwave (MW) or Radio Frequency (RF) processing. Sairem has been developing MW and RF generators for more than 30 years. MW and RF equipments are used in agri-food, chemical, rubber, ceramics and other industries.



MW Ovens for industry and research

Fricke und Mallah Microwave Technology GmbH designs and produces microwave ovens for industry and research. Microwave and Hybrid ovens improve the efficiency of heating processes for both laboratory and industrial applications, reducing process time and costs, compared to conventional heating processes. The design of customized microwave heating systems is based on specific experience in electrical and high frequency engineering solutions are: Drying of ceramics, casting forms and pharmaceuticals; Microwave assisted synthesis and green chemistry; Microwave vacuum drying; Plasma cleaning and coating; Pasteurization and Defrosting of food; Preheating of resins; Preheating in pultrusion.

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:fm

Fricke und Mallah Microwave Technology GmbH, founded in 1995, provides need-based, contemporary and sustainable solutions in microwave heating. With its 24 employees, it is one of the German leading suppliers of microwave ovens for industry and research. Microwave tunnels and chamber ovens are built with a total microwave power up to 1 MW. The main applications for the ovens are found in the ceramic, casting, wood, food, pharmaceutical and chemical industries. A further activity is the development of power electronics and microwave measurement equipment.

TC Meeting in Alicante

January 14th -16th 2014

The 5th Technical Committee Meeting was hosted by the University of Alicante, (Spain). UA is a fast growing higher education establishment, offering an Area for Industrial Experimentation and Research Services. UA brings in HELM its experience in the manufacture of SiC materials and of molecular dynamics simulation. The consortium has been invited to visit UA campus. The meeting focused on evaluating the current status of activities and identifying critical issues and contingency plans. Extended in-depth technical discussion of the three pillars allowed for defining immediate actions needed to recover the difficulties encountered in the design phase, conclude the furnaces realization and allow the industrial scale-up and validation to start in the following months.



Project Review in Stezzano

March 11th 2014

The 1st HELM Project Review was organised in Stezzano (Italy), at Brembo SGL Carbon Ceramic Brakes S.p.a. (BSCCB) premises. BSCCB leads the sector of carbon-ceramic rotors manufacturing for high performance brake systems. The Project Technical Assistant, Peter Nagy, participated in representation of the EC. The current status of the project has been presented, showing promising results as the first set of milestones is almost achieved, recovering the difficulties encountered in the furnaces design phase as illustrated during the previous meeting in Alicante. The Project Technical Assistant expressed a positive feedback, encouraging the consortium to keep up the hard work.



TC Meeting in Saint Petersburg

June 19-20th 2014

The 6th HELM Technical Committee Meeting was held in Saint Petersburg (Russia), organized by the Baltic State Technical University "VOENMEKH" (BSTU). BSTU – core partner of WP5 –is a higher education establishment which has more than 50 years of experience in research of technologies of composite materials. Specifically BSTU contributes with its experience in modeling and numerical study of gas- and liquid-phase processes of production of composites with carbon and ceramic matrices. During the meeting the activities carried out by the Partners in the last 6-month period have been presented, with the relevant goals achieved and the critical issues and pending points, so that a clear evolution of the project could be forecasted in a detailed Action Plan. HELM now has a restyled Website and joined the Youtube and Google plus.

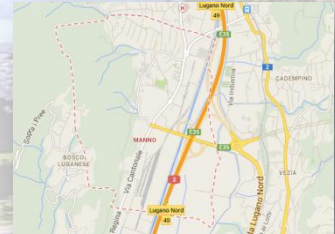


Future Events

7° Technical Committee - 2° Exploitation Committee, 4° Steering Committee, 2° Industrial Advisory Board meeting

Partner: SUPSI,
10-11 December 2014
Manno (Switzerland)

SUPSI



Conference and events

The ICMSE 2015: January 23 - 24, 2015

International Conference on Materials Science and Engineering aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Materials Science and Engineering. It also provides the premier interdisciplinary and multidisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Materials Science and Engineering.

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HELM Website



HELM on the new social media



If you would like to contribute an article or have any events that you would like us to include in the newsletter contact us at info.helmfp7@gmail.com.

If you would like to be added to the mailing list or no longer wish to receive the newsletter please email us at info.helmfp7@gmail.com.