

# PROJECT DETAILS

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, 1<sup>st</sup> 2012

End date: May, 31<sup>st</sup> 2016

EU contribution: 7,151,000 €

Total cost: 10,285,626 €



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# PARTNERS



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High-frequency **E**lectro-**M**agnetic technologies

for advanced processing of ceramic

matrix composites and graphite expansion



PROGRAMME ACRONYM

FP7-NMP

SUBPROGRAMME AREA:

NMP.2011.4.0-1



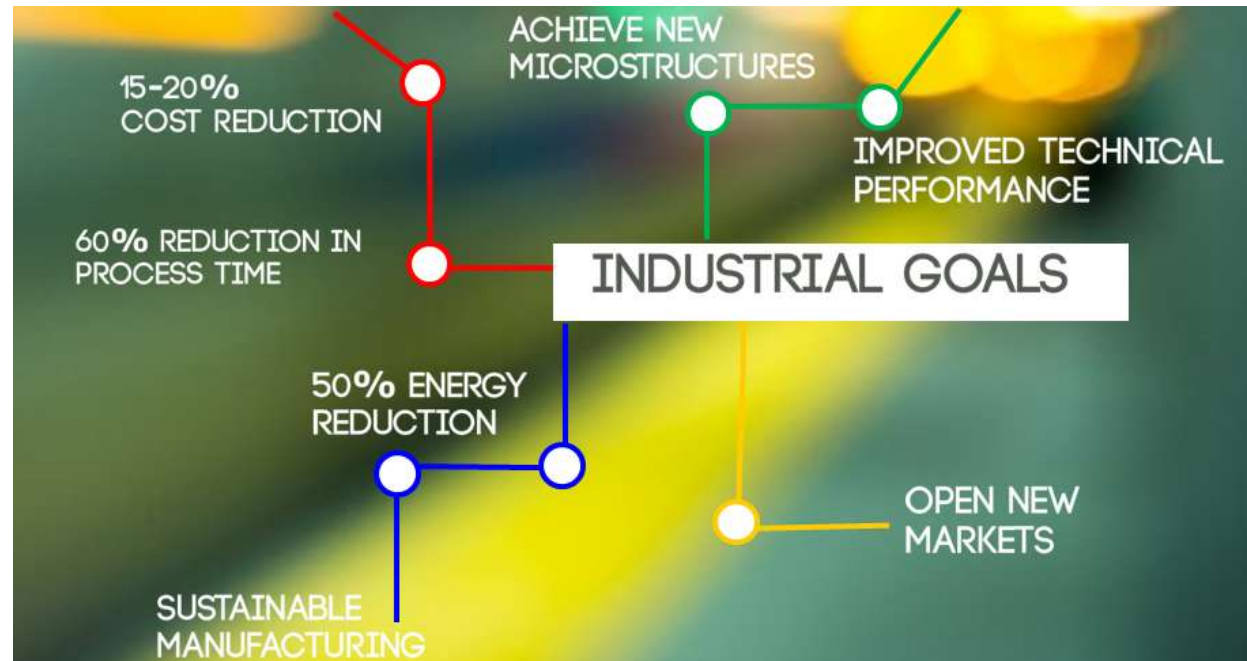
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# CONCEPT

HELM aims to investigate **processing technologies** based on **Microwaves (MW) and Radiofrequencies (RF)** for **carbon ceramic materials (CCM)**.

CCM represent the latest and most promising solutions for high temperature applications in the manufacturing industry, in the transportation sectors and for new demanding electrotechnical applications.

Lightweight CCM are the **top priorities** of *EuMAT ETP Strategic Research Agenda* and a key issue of the *EC Research Roadmap on Materials* towards Horizon 2020.



## CERAMIC MATRIX COMPOSITES (CMC)

Carbon (C) or silicon carbide (SiC) fibres reinforced CMC have high thermal conductivity, low thermal expansion, excellent thermal stress and creep resistance, high temperature microstructural stability.



## EXPANDED GRAPHITE (EG)

Conductive fillers with best thermal and electrical conductivity (e.g. for next generation electro-chemical cells).



## MAJOR IDENTIFIED GAPS

1. High costs
2. Materials performance and reliability
3. Process time and energy consumption
4. Environmental issues

## METHODOLOGY

