



# Horizon2020 Information Days on Public-Private Partnerships

Brokerage event  
21 October 2014

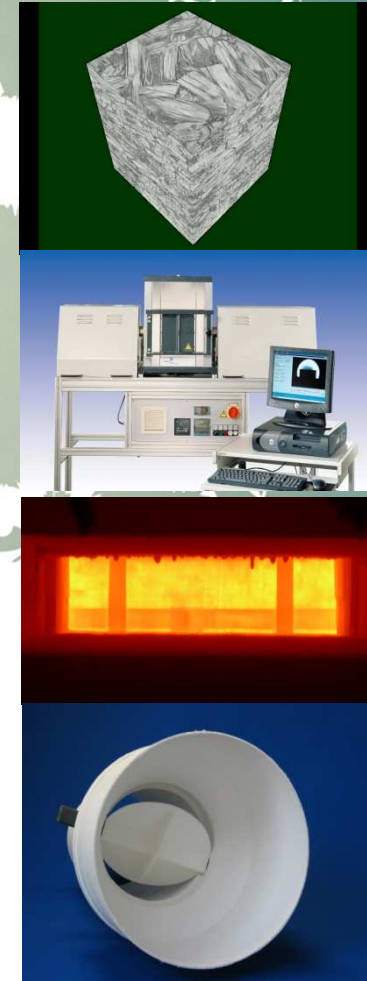
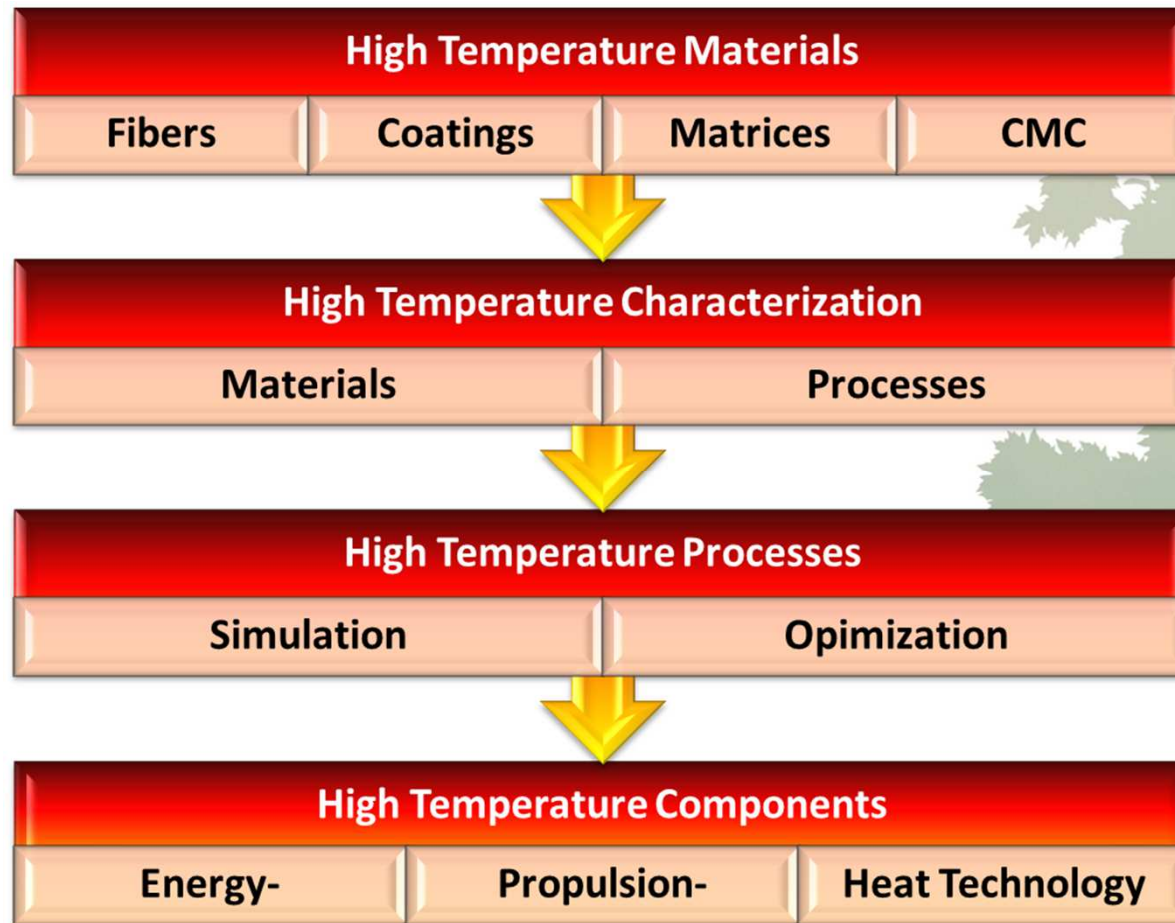
## FLEXIBLE ENERGY CONSUMPTION IN INDUSTRIAL HEAT TREATMENTS

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 **Fraunhofer**  
ISC / Zentrum HTL

**SPRE**  
Sustainable Process Industry through  
Resource and Energy Efficiency

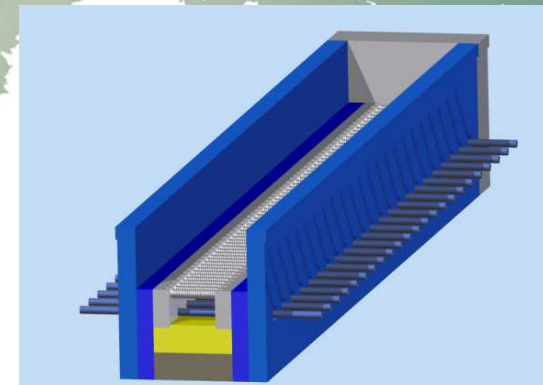
# Fraunhofer Center for High Temperature Materials and Design in Bayreuth, Germany



# PROJECT IDEA

## Objectives

- Design of flexible and efficient heating processes in industrial furnaces
- Development of thermo process equipment for flexible processes
- Simulating industrial processes:
  - In situ measurement in lab furnaces at controlled atmosphere
  - Computer simulation of heat flow and material response
- Energy and material flow management systems



# PROJECT IDEA

## Special competence of Fraunhofer HTL

- Highest resolution and reproducibility in situ monitoring of heating processes
- Accurate prediction of reaction kinetics

## Spire key activity

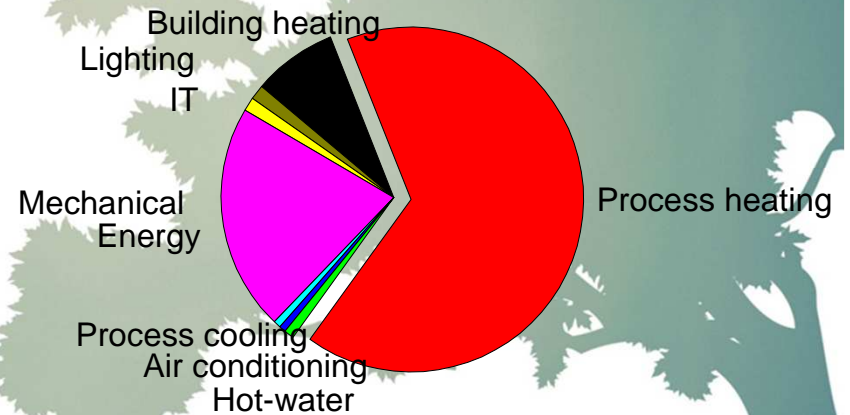
- 2. Process
- 2.2 Energy storage and reuse
- 2.3 Process monitoring, control and optimization
- 2.4 More efficient systems and equipment
- 2.5 New energy and resource management concepts
- Call SPIRE-06-2015



# EXPECTED IMPACT

- **Industry: 66% of energy used for heating processes**
  - **Heating processes are not flexible**
  - **Fluctuations in energy supply cannot be considered**
- **Significant decrease in energy consumption (30 %)**
- **Significant increase in flexibility**
- **Better control of product quality**

Energy Usage Industry Germany 2011



# EXISTING PROJECT CONSORTIUM

## **SGL, Bonn, Germany, Coordinator**

- Development of carbon based high temperature materials
- Optimization of heating processes for production of carbon products

## **Fraunhofer HTL, Bayreuth, Germany**

- In situ monitoring of heating processes
- Computer simulation of furnaces and processes

## **CEC, Limoges France**

- Measurement and simulation of heat flow
- Optimization of silicate ceramics

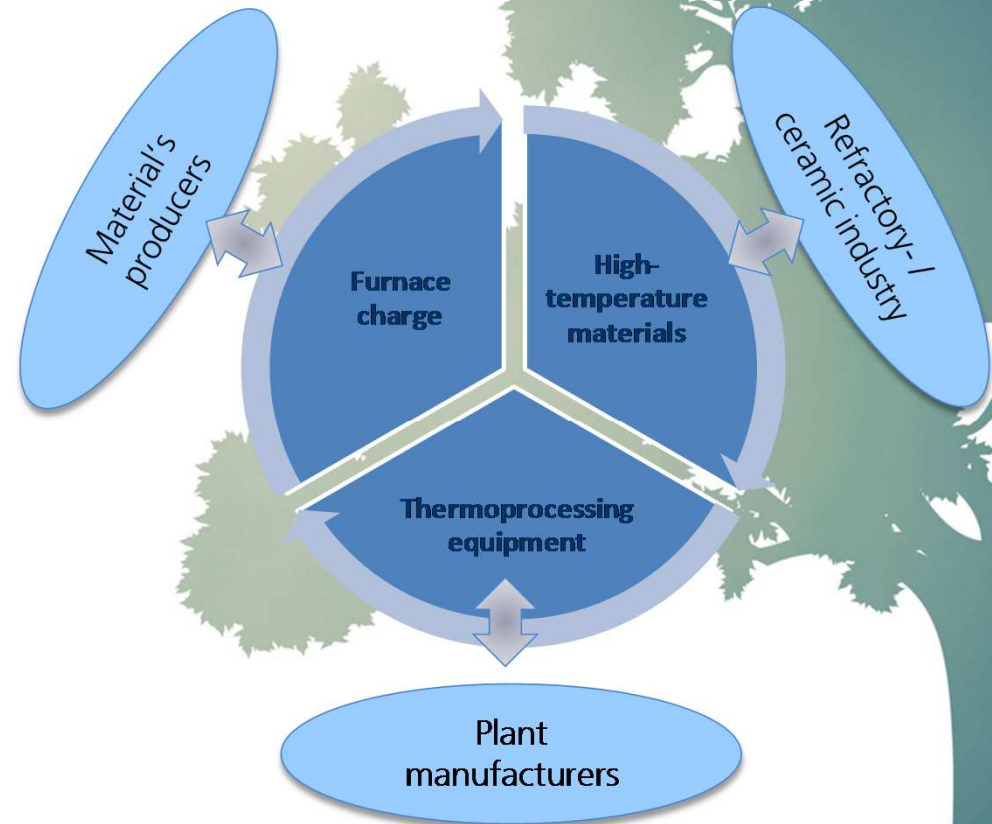
## **2 other French companies, Limoges region**

- Development of heat storage devices
- Optimization of firing processes for silicate ceramics

# LOOKING FOR PARTNERS

We look for additional partners:

- European companies and institutes
- With complementary competence
- Outside Germany and France



# CONTACT DETAILS

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